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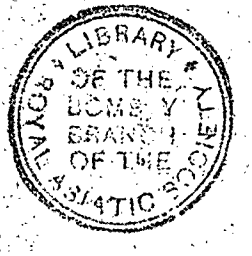
Annual Report of the Department of Industries, Bombay Presidency 1936-37



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CHAPTER I

GENERAL INDUSTRIAL OUTLOOK DURING THE YEAR

PART (i)—REVIEW OF GENERAL CONDITIONS

The year under review was a period of industrial revival and the general industrial outlook of the Presidency was encouraging. This improvement was in unison with the general trade recovery taking place all the world over. The immediate local causes contributing to the greater industrial activity, viz. the improved purchasing power of the masses, the fall in the foreign imports of manufactured articles and the availability of cheap money are reviewed below. The scare of an European War, which became more persistent during the latter half of the year, was an adventitious cause which served to quicken the pace of industrial recovery.

2. **Improvement in the Purchasing Power.**—The improvement in the international trade stimulated the demand for raw materials and thus led to an increase in the prices of agricultural products.

Wholesale Prices of Agricultural Commodities in Bombay

Articles	Trade descriptions	Rate per	Prices		
			February 1936	August 1936	February 1937
			Rs. a. p.	Rs. a. p.	Rs. a. p.
Wheat ..	Delhi No. I (White Pessy).	Cwt. ..	4 6 0	4 15 0	5 10 0
Linseed ..	Bold ..	,, ..	7 1 6	8 1 0	7 4 0
Gingelly Seed ..	White, Bold ..	,, ..	8 7 0	9 8 0	9 2 0
Groundnuts (bold) ..	F.O.R., Bombay ..	,, ..	7 10 0	11 0 0	8 4 0
Cotton ..	Broach fully good ..	784 lbs.	193 0 0	225 0 0	223 0 0

The increase in the volume of exports of agricultural products will be seen from the following figures of exports of merchandise which consist largely of agricultural and primary products :—

Bombay Provincial Summary of Exports of Merchandise (excluding Government Stores).

(Figures in crores of rupees)

Year	Value of Exports
1933–34	28·35
1934–35	31·02
1935–36	30·45
1936–37	39·55

Owing to the increase both in the volume of exports and in the prices of commodities, the economic condition of the agriculturist became better and his purchasing power improved.

3. **Foreign Competition less Severe.**—The expectation of a world war and the preoccupation of the major industrial countries with schemes of their national defence programmes affected the volume of imports of foreign merchandise into India. The value of imports, which had steadily been increasing during the last three years, recorded a decline during the year under review, the imports from Japan also sharing in the decrease, as the following figures will show. Foreign competition in manufactured articles, therefore, became comparatively less severe.

Value in Crores of Rupees of Merchandise Imported into British India

Year	Articles wholly or mainly manufactured	All articles of merchandise		
		Total imports	From United Kingdom	From Japan
1935-36	99·36	134·37	52·19	21·84
1936-37	92·38	125·22	48·09	21·26
Increase (+) or decrease (—) in 1936-37 as compared with 1935-36 ..	—6·98	—9·15	—4·10	—0·58

4. **Availability of Cheap Money.**—The bank rate continued unchanged at 3 per cent. throughout the year and the tone of the money market was easy. The time was thus opportune for industrial ventures.

The extent of industrial recovery made possible by the contributory factors mentioned above can perhaps best be illustrated by the pointers reviewed below.

5. **Increase in Factories.**—There was an increase in the number of factories on the register and also in the number of working factories in the Presidency. The comparative figures of the numbers of perennial and seasonal factories in 1936 and 1935 are given below :—

Year	Number of factories on register	Number of working factories		
		Perennial	Seasonal	Total
1935	1,743	855	644	1,499
1936	1,879	952	659	1,611

The employment situation, which was rather dull in the first half of the year ending 31st March 1937, brightened up in the latter half and the figures for numbers employed rapidly mounted up.

6. **Greater Consumption of Electric Energy.**—The data regarding consumption of electric power for industrial purposes also point to greater industrial activity during the year, as illustrated by the following figures :—

Territory	Number of concerns furnishing information	Units (in lakhs) of electricity supplied to industrial establishments in		
		1934-35	1935-36	1936-37
Bombay City and Bombay Suburban ..	3*	2,896·70	3,123·35	3,179·18
Northern Division	8*	80·03	113·99	172·24
Central Division	4	9·78	11·27	13·87
Southern Division	3	2·58	3·19	4·10
Total ..	18†	2,989·09	3,251·80	3,369·39

*Figures of one concern are for calendar year, January to December.

†Total number of concerns in the Presidency is 23.

7. **Fewer Industrial Disputes.**—Judged by the number of industrial disputes and the number of industrial establishments affected in the Presidency, industrial strife during the year 1936 was by no means extensive, although the loss in time suffered by industries on account of these disputes was much greater than in the previous year.

Year	Number of disputes	Number of establishments affected	Number of working days lost
1934	93	69	3,832,582
1935	56	69	242,214
1936	49	41	447,812

8. **Larger Industrial Production.**—As compared with the previous year, industrial production increased except in the case of the match industry. The fall in the production of the match industry is attributable to the lesser number of working factories, internal competition, and to a prolonged strike in the Ambernath Match Factory. The available statistics of output of different industries are presented in the table below :—

Industrial Production of the Bombay Presidency

Industry	Unit of production	Production in		Percentage Increase or decrease
		1935–36	1936–37	
Cotton (woven goods) ..	Millions of lbs. ..	471	474	+ 0·64
* Woollen and worsted piecegoods (including hosiery)	Thousands of lbs. ..	1,268	1,355	+ 6·86
* Paper	Tons ..	3,546	4,023	+ 13·45
Match	Thousands of gross ..	5,532	3,744	— 32·32
Sugar	Tons ..	24,746	34,149	+ 37·99
* Mining (Manganese) ..	Tons ..	4,866	28,944	+494·82

*Figures are for the calendar years 1935 and 1936.

9. The general confidence created by the revival in trade and industry was reflected in the advance made in Joint Stock enterprise in the Presidency as well as in the buoyancy of the Stock Exchange for industrial and mining shares.

(*a*) **New Floatations in the Presidency.**—The statistics for the year 1936-37 show that as many as 164 new companies were registered during the year and that the authorised capital of all the companies on the register at the close of the year recorded a net increase of 77·03 lakhs as against a net decrease of 31·28 lakhs at the end of the preceding year. The passing of a new and more stringent Indian Companies Act, which was to come into force early in the year 1937, might also have, in some cases, accelerated new issues that were in contemplation. The progress of

Joint Stock enterprise during the last 5 years is summarised in the table below :—

Year	Companies registered	Companies which became defunct	Net increase in the total number of companies	Net increase or decrease in the authorised capital of all companies Rs. (000)
1932-33	110	66	44	— 2,09
1933-34	134	50	84	—48,40
1934-35	182	61	121	+ 48,43
1935-36	168	60	108	—31,28
1936-37	164	74	90	+ 77,03

Out of the new flotations referred to above there were 2 cotton mills with a total authorised capital of Rs. 36·00 lakhs, 1 silk mill with an authorised capital of Rs. 10·00 lakhs, 1 knitting mill with an authorised capital of Rs. 2·00 lakhs, 3 ginning and pressing factories with a total authorised capital of Rs. 11·75 lakhs, 13 cinema producing companies with a total authorised capital of Rs. 70·10 lakhs, 13 electric undertakings with a total authorised capital of Rs. 142·02 lakhs, 1 company for the manufacture of Radio and its parts with an authorised capital of Rs. 1·00 lakh, 1 company pertaining to mines and minerals with an authorised capital of Rs. 1·00 lakh, 4 engineering concerns with a total authorised capital of Rs. 2·20 lakhs, 1 company for the manufacture of rubber goods with an authorised capital of Rs. 2·00 lakhs, 2 companies for the manufacture of tiles and cement with a total authorised capital of Rs. 801·00 lakhs, 1 company for the manufacture of dry ice with an authorised capital of Rs. 14·25 lakhs, 1 for the manufacture of sugar, 1 for the manufacture of salt, 1 for the manufacture of boots and shoes each having an authorised capital of Rs. 2·00 lakhs, 1 company for manufacturing enamel-ware with an authorised capital of Rs. 0·5 lakh and 1 glass factory with an authorised capital of Rs. 0·2 lakh, 23 printing and publishing presses with a total authorised capital of Rs. 46·22 lakhs, 8 companies of chemists and druggists with a total authorised capital of Rs. 7·45 lakhs, making a total authorised capital of Rs. 1,153·69 lakhs.

During the same period one match works, 3 gins and presses, one oil mill, 2 mining works, 6 cotton mills, 2 engineering works, 1 electrical undertaking, 2 chemical works, 1 cinema film company, 1 printing press

and 1 rubber manufacturing company with a total paid-up capital of Rs. 115·65 lakhs went into liquidation.

(*b*) **Industrial Shares.**—Quotations as at beginning and at end of the year under review for the shares of a few typical companies covering four different industries are set out below to indicate the improvement in the industrial situation of the Presidency that took place during the year.

Name of company	Paid up share value	Market value of share on	
		1st April 1936	31st March 1937
Cotton Mills—			
Bombay Dyeing	250	686¼	1,057½
Ahmedabad Advance	100	276¼	311¼
Sholapur Spg. & Wvg.	1,000	2,000	2,300
Gokak	100	158¾	232½
Electric Companies—			
Tata Power (Ord.)	1,000	1,472½	1,490
Sugar—			
Belapur Sugars	50	161¼	178⅜
Mining—			
Shivrajpur	10	28	62

10. **Legislative Measures affecting Industry.**—During the year under report, two important legislative enactments affecting industry were added to the Statute Book. These were (1) the Payment of Wages Act which provides for prompt payment of wages and the regulation of deductions from wages, and (2) the Indian Companies (Amendment) Act, which, *inter alia*, seeks to regulate and control the powers of Directors and Managing Agents of Companies. The former is designed to secure greater harmony between capital and labour, so essential for industrial prosperity, and the latter seeks to introduce reforms in company management which would tend greatly to stabilise industrial ventures in future.

PART (ii)—BRIEF REVIEW OF THE IMPORTANT INDUSTRIES OF THE PRESIDENCY

COTTON TEXTILE INDUSTRY

11. The improvement in the condition of the industry noticeable last year was maintained during the year under review. The main feature of the year was a comparatively slow progress in the earlier half followed by brisk activity in the latter six months. A comparative study of the aggregate statistics for the year 1936–37 as a whole, with the corresponding statistics for the previous year, may not therefore reveal the real position. By such a comparison it is found that the total number of mills, their paid-up capital, employment, total spindleage and loomage, production of woven goods (in lbs.), foreign exports of cloth and mill profits, all showed increases, while consumption of raw cotton, production of yarn and of cloth (in yards) as well as cloth prices recorded a decline. If the figures for the two halves of the year are analysed, it will be seen that consumption of raw cotton and production of yarn and of cloth (in yards) also increased during the year. The main tendencies of the year were: increased double-shift working, wider introduction of rationalised methods of work, lesser production of yarn for sales, greater concentration by the Bombay mills on the production of finer counts of yarn, increased production of cloth by the Ahmedabad mills, expansion of foreign markets for mill-made goods and a remarkable fall in the imports of foreign piecegoods into India.

In the field of trade relationships with foreign countries certain far-reaching events of importance to the textile industry occurred during the year and these were: (1) the notice of termination of the Ottawa Agreement given by India and the discussions that were in progress for the conclusion of a new Indo-British Trade Agreement; (2) the negotiations that were in progress for the renewal of the Indo-Japanese Trade Agreement and Protocol and the prospect of the Indian textile industry securing adequate protection under the revised terms of the Agreement; (3) the appointment of an Indian Trade Commissioner in Japan; and (4) the reduction with effect from 25th June 1936 of the import duty on British goods excluding printed goods, from 25 per cent. to 20 per cent. This was made on the recommendation of the Special Tariff Board under the Chairmanship of Sir Alexander Murray, which instituted inquiries with a view to determining the duty necessary to protect the Indian cotton mill industry against competition from the British textile industry.

The position with regard to the levels of the import duty on cotton piecegoods during the year under review in comparison with the previous

year is shown below. There was no change in the import duty on yarn during the year under review.

Articles	British Manufacture		Non-British Manufacture	
	Rate of Duty		Rate of Duty.	
	1935–36	1936–37	1935–36	1936–37
Grey piecegoods (excluding bordered grey chaddars, dhoties, sarees and scarves).	25 per cent. *ad valorem* or 4⅜ As. per lb. whichever is higher.	25 per cent. *ad valorem* or 4⅜ As. per lb. whichever is higher up to 24th June 1936. From 25th June 1936, 20 per cent. *ad valorem* or 3½ As. per lb. except on printed cotton piecegoods and printed fabrics for which the old rates continued.	50 per cent. *ad valorem* or 5¼ As. per lb. whichever is higher.	50 per cent. *ad valorem* or 5¼ As. per lb. whichever is higher.
Cotton piecegoods and fabrics not otherwise specified.	25 per cent. *ad valorem.*	25 per cent. *ad valorem* up to 24th June 1936. From 25th June 1936 20 per cent. *ad valorem* except on printed cotton piecegoods and printed fabrics for which the old rates continued.	50 per cent. *ad valorem.*	50 per cent. *ad valorem.*

The developments and tendencies referred to above are illustrated by the following review of such statistics as are available.

12. **Increase in Working Mills.**—The total number of cotton mills in the British districts of the Presidency increased by 1 to 191. The numbers of inactive mills and of mills working partially decreased each by one as compared with the previous year. Thus, the net increase in the number of mills working throughout the year was 3. The comparative figures for the last three years are as follows:—

Cotton Mills in the British Districts of the Bombay Presidency.

Year ending 31st August	Total number of mills	Number of mills that remained idle	
		Throughout the year	For part of the year
1934	190	12	18
1935	190	15	7
1936	191	14	6

13. **Spindles and Looms.**—There was an expansion in the total number of spindles and looms installed, but the number of active spindles decreased, while that of active looms increased. The decrease in the number of active spindles was due to the stoppage of the spindles producing yarn for sale. The statement below shows the total number of spindles and looms, their percentages to all-India spindleage and loomage and also the percentages of idle machinery, during the last three cotton years :—

Year ended 31st August	Spindles			Looms		
	Total in the Presidency	Percentage to all-India total	Percentage of idle spindles in the Presidency	Total in the Presidency	Percentage to all-India total	Percentage of idle looms in the Presidency
1934	5,966,180	62·0	23·6	135,710	69·6	20·0
1935	5,801,618	59·9	14·4	135,015	67·9	12·7
1936	5,818,599	59·0	15·9	135,712	67·8	11·4

14. **Increase in paid-up capital.**—The total amount of paid-up capital of the cotton mill industry of the Presidency increased by 13 lakhs as against an increase of 109 lakhs in the whole of India including Indian States. The comparative figures for the last three years are given below :—

(In crores of rupees)

Year ending 31st August	Amount of paid-up capital of cotton mills in—				
	Bombay City and Island	Ahmedabad	Other centres	British Districts of Bombay Presidency	Whole of India including Indian States
1934	13·31	4·82	3·73	21·86	39·23
1935	12·80	4·91	3·73	21·44	39·47
1936	13·20	5·00	3·37	21·57	40·56

15. **Employment, Night-Shift and Strikes.**—The average daily number of hands employed in cotton mills in each of the last 3 years is

set out in the table below which will indicate a fall in the average employment during the year 1936 :—

Year	Average daily number of persons employed (Official figures for the calendar year)
1934	245,868
1935	279,623
1936	266,062

As a matter of fact, in the latter half of the year ended 31st March 1937 there was a spurt in the industry and employment both in day-shift and in night-shift workings rose considerably. Both in Bombay and in Ahmedabad there has been an advance in night-shift work as will be seen from the following figures :—

Centre	Year ended 31st March 1937			
	At beginning of year		At end of year	
	Number of mills working night shift	Number of workers employed	Number of mills working night shift	Number of workers employed
Bombay	38	26,834	42	34,566
Ahmedabad	31	12,462	45	22,902

The number of industrial disputes which occurred in the Textile Industry during the year 1936 was greater than in 1935. Although the number of industrial establishments affected was less, the total loss in working time was nearly double that in the previous year.

Industrial Disputes in the Textile Industry of the Bombay Presidency

Year	Number of disputes	Number of establish-ments affected	Number of working days lost
1934	82	58	3,821,286
1935	32	48	184,650
1936	35	29	356,690

16. **Consumption of raw cotton.**—The figures of consumption of Indian cotton by mills situated in the British Districts of the Presidency are set out below side by side with the figures of imports of foreign cotton into Bombay during the last 3 years :—

Period	Indian cotton consumed in mills (in bales of 400 lbs.)	Imports of cotton into Bombay (in tons)
1st half 1936–37	564,841	25,530
2nd half 1936–37	544,490	35,162
Total 1936–37	1,109,331	60,692
Total 1935–36	1,173,273	72,877
Total 1934–35	1,201,309	57,801

There was a general decrease in the consumption of Indian cotton due to lesser activity in lower counts. The figures of imports of foreign cotton into Bombay show that while the imports in 1936-37 were considerably less than those in the previous year, there had been larger imports in the second half than in the first half of the year under review. This is attributable to the increased activity in the later months of the spindles producing medium and finer counts for local mill consumption.

17. **Cotton prices.**—A general decline in the prices of raw cotton set in early in the year 1936 following the withdrawal of the American Government from the control of cotton prices in January 1936. The prices touched the rock-bottom at the end of February 1936. From March onwards the market steadied and prices gradually rose reaching the high-water mark of the season in July 1936. The price of Broach cotton, which is the barometer of the Bombay cotton market, fluctuated from Rs. 186-4-0 at the end of February 1936 to Rs. 243-8-0 in the middle of July 1936, the average price for the cotton season 1935–36 working out at Rs. 210-8-0 per 784 lbs. as against Rs. 229-9-0 in 1934-35.

18. **Production of yarn and cloth.**—As a corollary to the reduction in the total consumption of raw cotton and the lower spindle activity already referred to, the total quantity of yarn produced during the year, as a whole, also decreased.

Production of Yarn

(Millions of lbs.)

Counts	Bombay			Ahmedabad			Bombay Presidency		
	1934–35	1935–36	1936–37	1934–35	1935–36	1936–37	1934–35	1935–36	1936–37
1 to 20	137·1	154·3	139·9	79·0	63·5	63·0	259·8	260·8	243·2
21 to 30	83·4	92·9	77·4	53·6	43·9	40·6	165·7	164·5	143·3
31 to 40	30·1	36·7	37·9	25·7	32·7	34·1	60·2	74·1	76·7
Over 40 ..	13·6	19·9	20·7	20·5	26·2	25·3	36·2	48·4	48·8
Total, (including waste) ..	265·3	304·8	276·7	179·0	166·4	163·0	523·0	548·8	512·9

The decrease was confined to coarser yarn which is produced mainly for consumption in blanket weaving and by handloom industry and for mofussil sales. Owing to the slump in the demand for these counts, the production was adjusted to the needs of the local mills which were progressively turning to the manufacture of finer cloth. An analysis of the figures of production in the two halves of the year will at once reveal how there was increased activity in medium and finer counts. The table below shows the results of such an analysis. It may be mentioned that Bombay has made a steady progress in the production of finer counts.

Production of Cotton Yarn in the Bombay Presidency in 1936–37

(Millions of lbs.)

—	Yarn of 1 to 30 counts			Yarn of 31 to 40 counts			Yarn of over 40 counts		
	1st half	2nd half	Total	1st half	2nd half	Total	1st half	2nd half	Total
Bombay ..	113	105	217	18	20	38	9	12	21
Ahmedabad	54	50	104	16	18	34	12	13	25
Total, Presidency ..	202	185	387	36	41	77	22	27	49

The quantity of woven goods produced in the Presidency increased. The question of controlling production, which was stated to be under consideration of the industry last year, no longer engaged its attention owing to changed conditions. On the other hand, the possibility of the outbreak of an European war induced the mills to resort to double-shift working all the more, with a view to taking advantage of the boom that was expected in 1937. Looking to the character of production, there was an increase in " shirting and long cloth ", whereas " dhoties " decreased considerably. " Coloured piecegoods " and " printers " also recorded small decreases while there was an increase in all the other sorts. The table below contains the statistics of production (in lbs.) of woven goods in the Presidency during the years 1934-35 to 1936-37.

Production of Cotton Piecegoods

(Millions of lbs.)

—	Bombay			Ahmedabad			Bombay Presidency		
	1934-35	1935-36	1936-37	1934-35	1935-36	1936-37	1934-35	1935-36	1936-37
Grey and bleached.	176·4	202·5	197·5	130·6	114·5	118·0	342·2	352·5	354·3
Coloured..	40·2	47·9	45·0	52·8	47·4	48·8	105·0	108·4	107·3
Others ..	7·3	8·0	8·9	1·9	2·1	2·8	9·5	10·3	12·2
Total ..	223·9	258·4	251·4	185·3	164·0	169·6	456·7	471·2	473·8

In the case of piecegoods also, the tendency to increase production during the latter half of the year was noticeable, as illustrated by the following figures. It will be seen that only in the case of yardage of " grey and white goods " produced by the Bombay mills there has been a fall and this is due to the fact that especially in shirting and long cloth, there has been a decrease in the ratio of the number of yards per lb. of cloth produced.

Production of Woven Goods in the Bombay Presidency

	(Million lbs.)			(Million yards)		
	Bombay	Ahmed-abad	Presi-dency	Bombay	Ahmed-abad	Presi-dency
Grey and White.						
1st half 1936-37 ..	98	56	172	475	311	863
2nd half 1936-37 ..	100	62	182	463	342	886
Total, 1936-37 ..	198	118	354	938	653	1,749
Coloured Goods.						
1st half 1936-37 ..	22	23	51	108	145	288
2nd half 1936-37 ..	23	26	56	110	166	310
Total, 1936-37 ..	45	49	107	218	311	598

19. **Imports of yarn and cloth.**—There was a big fall in the imports of foreign yarn into the Presidency and into British India during the year. The actual figures are as under :—

(Figures in thousands of lbs.)

Imports into	1934-35	1935-36	1936-37
British India	34,022	44,570	28,520
Bombay	14,320	18,944	13,496

An analysis of the foreign imports of yarn into British India during the year 1936-37 shows that there was a fall in medium and finer counts whereas the coarser counts recorded an increase. The following figures illustrate the observation made :—

Imports of Yarn into British India

Quality of yarn	During the 12 months April to March		Increase or decrease in 1936-37 as compared to 1935-36
	1935-36	1936-37	
	(1,000 lbs.)	(1,000 lbs.)	(1,000 lbs.)
Coarse—Nos. 1 to 25	357	422	+ 65
Medium—Nos. 26 to 40	14,751	5,250	—9,501
Fine—Above No. 40	8,710	8,483	— 227

The imports into British India of cotton piecegoods, both in the " grey and bleached " as well as in the " coloured and printed " lines declined to a remarkable extent during the year. The statistics of Indian production and foreign imports of cotton piecegoods during the last four years are presented below :—

Indian Production and Foreign Imports of Cotton Piecegoods

(In Millions of Yards)

Year	Grey and Bleached			Coloured, Printed and Dyed		
	Production		Imports into British India	Production		Imports into British India
	Bombay Presidency	British India		Bombay Presidency	British India	
1933-34 ..	1,496	1,956	492	528	597	269
1934-35 ..	1,701	2,261	583	583	653	361
1935-36 ..	1,801	2,362	595	606	676	352
1936-37 ..	1,749	2,345	481	598	673	283

20. **Exports of yarn and cloth.**—The export trade in cotton twist and yarn is almost an insignificant factor in the total commerce of this Presidency. Out of about 39·5 crores of rupees worth of merchandise exported from Bombay, only 0·5 crore is accounted for by twist and yarn. Even so, there has been an increase in the quantity and value of exports of yarn during the year as compared with the previous year as will be seen from the figures given below :—

Exports of Cotton Twist and Yarn

Exports from	Quantity (Millions of lbs.)			Value (In lakhs of rupees)		
	1934-35	1935-36	1936-37	1934-35	1935-36	1936-37
British India.. ..	12·8	9·7	12·2	62·7	46·9	58·6
Bombay	12·0	9·2	11·2	58·8	44·2	53·6

The export trade in piecegoods increased considerably during the year. Owing to certain restrictions imposed by Iraq against imports of Japanese goods into that country and to the imposition of additional duties on Japanese goods imported into Egypt, the Indian mills were afforded

an opportunity to develop and expand their export trade with these two countries. The total quantity and value of cotton piecegoods exported from British India to foreign countries during the last three years as well as the share of the Bombay Presidency in the export trade are set out in the table below :—

Exports of Indian Piecegoods to foreign Countries

Class of Piecegoods	Quantity in Millions of yards			Value in lakhs of rupees		
	1934–35	1935–36	1936–37	1934–35	1935–36	1936–37
Grey (unbleached) ..	6·4	8·9	23·2	14·3	18·1	40·9
White (bleached) ..	0·5	1·3	4·6	1·3	2·9	10·3
Coloured, printed or dyed	50·8	61·1	73·8	161·1	181·9	212·1
Total (from British India).	57·7	71·3	101·6	176·7	202·9	263·3
Share of Bombay Presidency ..	35·6	48·6	71·0	93·9	118·4	149·6

21. **Cloth Prices.**—The prices of cloth showed no improvement during the year due to poor off-take in the earlier months of the year and keen internal competition. The easier tone of the cotton market might also have been a factor affecting the prices of cloth, although it was stated that the prices of yarn and cloth fluctuated independently of the raw cotton prices. In the later months of the year, however, demand became brisker and prices firmer. The average wholesale market prices in Bombay of two representative varieties of Indian manufacture, viz. long cloth and chaddars, during the years 1934-35, 1935-36 and 1936-37 were as follows :—

Average Wholesale Market Prices of Cloth in Bombay

Item	Rate per	Year ending March		
		1935	1936	1937
Indian—		Rs. a. p.	Rs. a. p.	Rs. a. p.
Long cloth (standard) quality 37″ × 37½ yards × 9 lbs.	lb.	0 10 3	0 9 10	0 9 8
Chaddars, 50″ × 6 yards 2¼ lbs. ..	lb.	0 10 2	0 10 0	0 9 8

22. **Analysis of the year's working.**—There is reason to believe that the prices though low were not unremunerative. From the annual reports of the cotton mills received in this Department, it is found that some mills were able to make profits during the year 1936, and the results of the working of the cotton mill industry were, on the whole, satisfactory. Expansion of the export trade, lower price of cotton, cheaper power and less overhead charges due to internal economies effected, and the reconstruction of capital by several mills with a view to reducing interest charges may be said to be among the factors that contributed to the improvement. Out of the 74 mills in Bombay City and Island, 39 furnished their latest annual reports and balance sheets for the year 1936. Only 10 of these reported losses while the remaining 29 made profits. Dividends were declared by 18 out of 29 profit-making mills, and also by one of the mills which reported losses during the year.

The reports received from the Ahmedabad mills related to the year 1935 and these have not, therefore, been dealt with here.

WOOLLEN MILLS AND WOOLLEN INDUSTRY

23. The state of the woollen industry of the Presidency showed no improvement. The number of woollen mills working during the year was the same, viz. 3, as in the previous year. As regards production, while the quantity of piecegoods produced increased, there was a decrease in the production of yarn, thereby reducing the figure for the total output of the mills. Foreign imports slightly increased and, in addition, Bombay received by rail considerable quantities of woollen goods from Cawnpore and other important woollen manufacturing centres of India. The following are the figures of local production (yarn and piecegoods) and foreign imports :—

A Year.	Local production of yarn and piecegoods including hosiery. lbs.	Value in lakhs of Rs.	*B* Year.	Foreign imports of woollen manufactures into Bombay (Value in lakhs of Rs.)
1934	2,062,674	33·8	1934-35 ..	136·7
1935	1,742,386	28·1	1935-36 ..	95·8
1936	1,687,589	26·2	1936-37 ..	96·05

A—The production statistics are for Calendar year.

B—The statistics of import are for the financial year ending 31st March of each year.

HOSIERY

24. The slight improvement noticeable in this industry last year was maintained during the year. The local woollen hosiery industry, however, continued to suffer from external competition specially from the inferior qualities of knitted goods. The number of hosiery factories increased by one to 15. There was a steady increase in the local production of hosiery while the value of foreign imports decreased due partly to the fall in the exchange rate. The comparative figures of production and imports of hosiery into Bombay during the last five years are as follows :—

Year.	Local production of hosiery.	Value of foreign imports of hosiery into Bombay.
	Lbs.	Lakhs of Rs.
1931–32	480,000	15·00
1932–33	450,000	19·71
1933–34	487,000	21·44
1934–35	1,035,000	20·69
1935–36	1,234,000	20·74
1936–37	1,829,932	12·13

SILK FABRICS

25. The condition of the silk (real and artificial) weaving industry improved during the year. The imports of real silk yarn and piecegoods decreased as indicated by the following figures :—

Imports

(Figures in Lakhs.)

	1936–37.		1935–36.		1934–35	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Lbs.	Rs.	Lbs.	Rs.	Lbs.	Rs.
Silk yarn	18·58	45·49	25·27	59·86	24·25	58·13
	Yds.		Yds.		Yds.	
Silk piece-goods ..	192·42	70·87	237·97	76·44	284·19	106·49

There was a marked improvement in the activities in the artificial silk section as a direct result of the continuance of the high protective duties on artificial silk goods imported into India. The actual rates of duties in force on artificial silk fabrics were :—

Nature of duty.	Country of origin.	Rate.
Protective ..	British	.. 30 per cent. *ad valorem* or annas 2½ per square yard whichever is higher.
	Non-British	.. 50 per cent. *ad valorem* or annas 4 per square yard whichever is higher.

The artificial silk weaving industry depends largely on imported yarn and the statistics of imports show that there has been an increase in the quantity of artificial silk yarn imported into Bombay.

Imports into Bombay

	1934-35.		1935-36.		1936-37.	
——	Quantity in lakhs of lbs.	Value in lakhs of Rs.	Quantity in lakhs of lbs.	Value in lakhs of Rs.	Quantity in lakhs of lbs.	Value in lakhs of Rs.
Artificial silk yarn ..	103·10	73·34	98·29	56·19	114·21	67·63

The establishment of some new factories for the production of artificial silk cloth was under consideration during the year under report.

GAS MANTLE INDUSTRY

26. During the year, the industry showed signs of recovery from the slump that prevailed during the last three or four years. There has been an improvement in the quality of the gas mantles produced in this Presidency and these, therefore, found ready sales. The local manufacturers reported that they were able to sell more mantles than

they used to do before. Some of the local produce was even exported to foreign countries. It is hoped that in the near future the industry will be firmly established. There was a steady falling off in the imports of gas mantles into Bombay and during the year under review the value of imports was nearly 33 per cent. less than that of the previous year as the following figures illustrate :—

Imports

Year.	Value of imports into India	Share of Bombay
	Rs.	Rs.
1934-35	3,43,469	1,99,064
1935-36	3,47,422	1,58,256
1936-37	2,35,907	1,08,538

CHEMICAL INDUSTRY

27. The chemical industry, except heavy chemical industry, in the Presidency on the whole did fairly well during the year under report. A plant for the production of acetic acid which had been closed down, was reorganised during the year and started operation.

The number of chemical factories in the Presidency in 1936 was 9 as against 3 in 1935 and 2 in 1934. The value of imports of chemicals into Bombay declined as the following figures will show :—

Year.	Value of Imports.
	Rs.
1934-35	81,76,349
1935-36	90,11,642
1936-37	72,30,054

SUGAR INDUSTRY

28. There was steady improvement in the condition of this industry. The number of working factories remained unchanged. Production increased and imports decreased considerably. In all, there are six sugar factories working in the British Districts in addition to two factories working in the Indian States of this Presidency. The total production of the six factories in the British Districts was 34,149 tons during the

year under report as against 24,746 tons during the year 1935–36. In addition to the above sugar factories there were 8 *khandsari* sugar factories working in this Presidency as against 9 during the last year. The production of these factories was about 184 tons of sugar as against 90 tons last year. The imports of sugar into Bombay during the year under report were 5,313 tons valued at Rs. 5,94,696. The corresponding figures for 1935–36 were 126,227 tons valued at Rs. 121 lakhs. From the point of view of the estimated normal consumption of sugar in the Presidency there is ample scope for the development of this industry. Factors such as the good quality of cane grown in this Presidency would facilitate expansion. The indigenous industry is now supplying to the consumer sugar at comparatively low prices as will be seen from the following statistics of prices of sugar :—

Average prices per cwt. in Bombay

Year.	Indian Sugar.		Java Sugar.
	Good.	Ordinary.	
	Rs. a. p.	Rs. a. p.	Rs. a. p.
1934	14 3 8	14 0 2	13 4 3
1935	14 0 10	13 11 7	13 11 6
1936	12 15 7	12 2 10	13 7 9

MATCH INDUSTRY

29. During the year under report there were in all 11 match factories in existence as against 13 in the previous year, out of which 3 factories worked only for a part of the year. There was a considerable decrease in the figures of production during the year under report when compared to last year. Only 3,743,507 gross match boxes were produced during the year 1936–37 while the production in the year 1935–36 was 5,532,363 gross boxes. The great fall in production is due to the closure of some factories, the partial working of a few others and to the strike which occurred in the largest producing unit in the industry lasting for about 3½ months. The imports of matches into the Presidency from foreign countries continued to be negligible as usual.

PAPER INDUSTRY

30. The two paper mills, one in Poona and the other in Bombay, belonging to the Deccan Paper Mills Co. Ltd. continued to work throughout the year. One paper mill in Bombay outside this group

remained entirely closed during the year under report as it did last year. The paper mill erected in 1935 at Barejadi near Ahmedabad worked throughout the year. Thus there were at the end of the year three paper mills working in the Presidency. During the last three years the production of paper in the mills has shown a steady increase. Both the Deccan Paper Mills Co. which controls the two mills in Bombay and Poona, and the Barejadi mill are limited concerns. Details of the capital invested in, and the production of, the industry for the last three years are presented below :—

Year.	Number of factories.	Authorised capital.	Production.	
			Quantity in tons.	Value in lakhs of rupees.
		Rs. (000)		
1934	4	*9·25	3,068·73	11·00
1935	4	14·25	3,546·19	11·99
1936	4	14·25	4,023·29	13·15

*This does not include capital of a factory under construction.
Note.—Out of these four mills, one is a private mill whose capital is not known.

The imports of different kinds of paper into Bombay showed a definite downward trend as will be seen from the table below :—

Imports.

	1934–35.		1935–36.		1936–37.	
	Tons.	Value (lakhs of rupees).	Tons.	Value (lakhs of rupees).	Tons.	Value (lakhs of rupees).
Packing and Wrapping paper—						
India	15,682	38·20	20,275	53·02	18,207	48·06
Bombay	7,413	16·24	9,694	25·52	7,503	20·70
Printing paper—						
India	37,929	75·35	50,717	96·10	49,562	87·05
Bombay	14,079	28·39	18,486	36·20	17,626	31·23
Writing paper and envelopes—						
India	6,644	33·28	7,361	34·71	7,524	33·60
Bombay	3,233	15·13	3,703	16·65	3,476	14·77
Blotting paper—						
India	(a)	(a)	302	1·64	277	1·54
Bombay	(a)	(a)	136	·70	177	·66
Straw boards—						
India	13,210	12·20	15,090	12·87	13,456	11·22
Bombay	5,750	5·12	5,814	4·83	5,718	4·63

(a) Separately recorded from 1935–36 only.

GLASS INDUSTRY

31. There are five glass works and two bangle factories in the Presidency. A glass factory had been planned and was being erected under the supervision of a German Expert at Sant Road Railway Station to the east of Godhra. This factory is being put on the same site as the old Sant Road factory which worked for few years before the war. It proposes to use wood as the fuel for the production of glass. As the glass factories are not required to submit their returns of production, etc., statistics of production by these factories are not available.

As mentioned in the last year's report, the Government of India decided to give rebate on the import duty on soda ash that is used by the glass factories. This Department carried out the work of checking the consumption of soda ash by the glass factories in the Presidency. In all, about 267½ tons of soda ash were consumed during the year by all the factories in the manufacture of glass and glass bangles. The glass industry had to face competition from the goods imported from foreign countries, especially Japan. The following table shows the imports of glass materials and glassware into India and Bombay during the last three years :—

Imports

Year.	Total Imports into India.	Share of Bombay.
	Rs.	Rs.
1934-35	1,32,56,436	58,90,471
1935-36	1,39,39,925	54,50,898
1936-37	1,27,91,728	50,14,216

OIL MILLS

32. The industry as a whole continued to do well during the year. The number of oil mills in the Presidency stood at 71 during the year 1936 as against 53 in 1935 and 46 in 1934. The oil extraction plant at Kalyan referred to in the last year's report was closed down due to disagreement among the different partners. Steps, however, are now being taken by the parties to re-organise the concern and it is hoped that the plant will resume working in the near future.

VEGETABLE GHEE

33. The two vegetable ghee factories referred to in the last year's report continued to work during the year and it is reported that they did well during this year also. The imports of vegetable ghee into the Presidency are now almost negligible. It will be interesting to note from the table given below how the imports of vegetable ghee have fallen during the last ten years. The requirements of the Presidency are now met by the product of the local industry but data regarding the local production are not available :—

Imports of Vegetable Ghee into Bombay

Year.	Quantity in cwts.	Value in Rupees.
1927-28	147,660	67,22,458
1928-29	131,448	54,93,919
1929-30	101,468	40,70,361
1930-31	104,213	38,90,801
1931-32	40,162	14,97,225
1932-33	18,703	7,32,685
1933-34	1,310	48,837
1934-35	2,063	47,507
1935-36	1,023	31,157
1936-37	782	21,758

SOAP INDUSTRY

34. As mentioned in the previous year's report it is very difficult to keep a record of all the soap factories in this Presidency as most of them do not come under the Factories Act. During the recent years there has been a considerable development of this industry as will be testified by the following figures of imports of soap into Bombay :—

Year.	Quantity in cwts.	Value in Rupees.
1934-35	79,340	18,79,099
1935-36	14,016	8,48,000
1936-37	11,003	7,31,361

The figures of imports indicate that in the near future the Presidency will be producing more or less all its requirements of ordinary soap. There was a steady increase in the quantity and value of exports of soap from Bombay. The following are the actual figures of export of soap from Bombay during the last three years :—

Year.	Quantity in cwts.	Value in Rupees.
1934-35	16,308	2,34,677
1935-36	20,693	2,62,234
1936-37	23,468	2,85,524

CONFECTIONERY

35. There were 6 confectionery (including chocolate) manufacturing factories and 4 biscuit making establishments as mentioned in the last year's report. Most of these factories except the biscuit making establishments continued to suffer from internal cut-throat competition. The industry requires a sound policy of finance and marketing. It is desirable that enterprising industrialists should look into the needs of the industry and find out ways and means to put this important industry on a sound basis.

ENGINEERING INDUSTRY

36. There were 171 engineering concerns during the year against 180 in the previous year, coming under the Indian Factories Act. Besides these, there is a considerable number of small machine-shops and assembly shops which do not come under the Indian Factories Act. The main activity is in engineering structural work required for the many new building structures which are now employing to a large extent a steel frame with very light building walls and floor. There has also been an increase in the manufacture of machinery required mainly in connection with agricultural work, e.g. cereal, cleaning and grinding mills, oil mills and water pumps for irrigation purposes. A steady progress has also been made in the manufacture of small and medium sizes of crude oil engines ; these have given consistent good results. On the whole the condition of the engineering industry showed a slight improvement over last year's.

WIRE AND NAIL MANUFACTURE

37. From October 1936 the Government of India has discontinued the tariff rebate system on steel rods imported for wire manufacture by wire drawing factories. This has been to the disadvantage of the small factories which have no rod rerolling mills. The large factories in India equipped with rod rolling mills have benefitted by the low duty on billets. It is hoped that the existing small factories will be able to survive the present conditions.

ALUMINIUM HOLLOW WARE INDUSTRY

38. The following are the imports of aluminium into Bombay and India for the last three years :—

	Quantity.			Value (figures in lakhs).		
	1934-35.	1935-36.	1936-37.	1934-35.	1935-36.	1936-37.
	Cwt.	Cwt.	Cwt.	Rs.	Rs.	Rs.
Bombay	20,384	24,282	20,028	14·92	16·61	13·14
India	52,467	63,516	63,246	38·23	45·12	43·44

During the year under review there was a decided improvement in the aluminium hollowware trade which is considered to be due directly to the result of organised control of sales and the elimination of cut throat competition. It is considered that this improvement will continue, assisted as it is by the increase in the cost of yellow metal and copper.

GOLD THREAD INDUSTRY

39. Due to the efforts of this Department, the quality of gold thread manufactured has shown steady improvement. The results of this Department's aid to improve the condition of the industry are reflected in the decline in the value of imports despite the increases in the prices

of silver and gold. Imports of gold and silver thread into Bombay and India for the last four years are given below :—

	1933–34 (value in lakhs of Rupees).	1934–35 (value in lakhs of Rupees).	1935–36 (value in lakhs of Rupees).	1936–37 (value in lakhs of Rupees).
India	6·46	4·69	5·16	3·71
Bombay	3·39	1·83	2·05	1·42
Percentage of Bombay to India ..	52·5	40·0	39·7	38·21

So far no marketing association has been formed to put a stop to the severe internal competition, as suggested in the last year's report. The market for the local products of this industry showed no improvement. In order to help out the present depressed condition of the workers in this industry the Department has under consideration a subsidiary scheme of gold thread manufacture viz., manufacture of imitation gold thread ; this has been detailed further in chapter III of the report.

CIGARETTE INDUSTRY

40. Practically the same number of cigarette factories was working in the Bombay Presidency as in the last year, but several made considerable additions to their existing machinery. Although there has been a considerable increase in the local production of cigarettes, yet the Presidency's requirements have had to be supplemented by foreign and inland imports (Indian manufacture).

The value of Sea Borne imports of cigarettes into Bombay showed a remarkable increase in the year under report.

Imports of Cigarettes

Year.	Value in lakhs of Rupees.
1931–32	12·16
1932–33	10·62
1933–34	7·47
1934–35	8·10
1935–36	9·67
1936–37	13·39

PART (iii)—NEW ENTERPRISES

41. During the year under review some new factories were established in the Presidency. Some of these are, yellow metal and copper sheet rolling mills, establishments for retreading of motor tyres and metal spraying, factories for the manufacture of spare parts for oil expeller and oil extraction plant, steel rolling shutters, absorbent cotton and surgical instruments, office files and envelopes, advertising tapes, gramophone records, canned goods etc. Where necessary, the names of the factories were brought to the notice of the Directors of Industries in the various provinces and Indian States and other Government Departments etc. likely to be interested. Some of the industries are reviewed below.

42. **Retreading old motor car tyres.**—Due to increase both in passenger and in freight motor traffic there is a large consumption of tyres and to meet the demand for low cost tyres, tyre-reconditioning factories have increased in the city. The new factory equipped with modern machinery and appliances, which was started in the previous year continued to work during the year. In addition, two new factories were started, bringing the total number of such factories in Bombay to three.

43. **Oil expeller and oil extraction plant spare parts.**—In this Presidency there are many oil mills equipped with machinery which require spare parts for renewals which used to be imported to a large extent. But they are now being made locally to an appreciable extent. The work turned out locally is good.

44. **Steel rolling shutters.**—Encouraged by the demand in connection with the new buildings now being constructed in Bombay City and suburbs, where shop frontages are fitted with steel shutters, another factory has started the manufacture of revolving steel shutters suitable for buildings, godowns etc. The factory only assembles the parts of shutters, using imported rolled steel plates, shutters etc., while the factory reported on last year makes all its shutters locally. These shutters have been widely used for several buildings in Bombay, Poona, Ahmedabad, Surat, Bangalore and Madras and other places.

45. **Advertising tapes.**—There has been a fairly large local demand for labelled tape and cordage for binding packages for customers. To supply this want a local factory started at Kurla in the Suburb of Bombay City, manufactures advertising tapes, required for packing purposes. The tapes are in various colours and vary from 4 mm. width to 8 mm. and can be printed on in English or the local languages.

46. **Gramophone records.**—A new factory for the manufacture of gramophone records was started in Bombay. The experimental work of the Company commenced in September 1936 and the actual operations for production of records began a month later.

47. **Rolling yellow metal sheets.**—A local factory has been experimenting with the utilization of yellow metal scrap and the rolling of sheets from this. The work in this connection is under progress; and it is expected that after satisfactory results have been obtained, a small unit of a rolling plant would be installed.

48. **Rolling copper sheets.**—A local copper hollow-ware factory, as mentioned in the last year's report, is now manufacturing copper sheets to supply some of its own requirements, by utilizing the local copper scrap and pig copper, and rolling the sheets from cast ingots. A notable feature of this work is the local manufacture of the copper melting furnace built from the refractories made by a local firm—the Bombay Pottery Works. Some of the parts of the rolling machinery have also been made locally. The owners of the factory have done very useful work in the matter of utilization of the local waste for the manufacture of sheets for their hollow-ware requirements.

49. **Manufacture of Twist Drills.**—A factory will shortly commence manufacturing twist drills locally, using imported steel bars for its requirements. The factory is well-equipped both in machinery and staff.

50. **Metal Spraying.**—A new factory has been started for spraying of zinc, brass, copper, lead, nickel, tin, etc. metals on to metal sheets, wood and paper boards etc. surfaces. This is a new industry and will serve a useful purpose for the engineering and constructional industries.

51. **Manufacture of Electrodes.**—A small factory has been started in Bombay for making electrodes locally, using partly imported and partly local raw materials. The local product has been tested out and has given fairly good results. The factory is able to quote rates which easily compete with those for similar types of imported electrodes.

52. **Canned Goods.**—A large factory equipped with up-to-date machinery has been started in Bombay for the canning of mangoes and other fruits. The factory is at present canning only mangoes in the form of mango slices and mango pulp. A part of the demand for the fruit is supplied by the Company's own gardens in Thana and Ghatkopar. At present empty cans are imported from England. The factory is under the technical supervision of an Indian expert who has had considerable training in this line in America. The concern is specially interested in developing overseas markets for its products.

53. **Absorbent Cotton and Surgical Instruments.**—A factory equipped with the latest machinery for the manufacture of surgical instruments and appliances, hospital furniture and absorbent cotton was established during the year in Matunga. The factory has also installed a plant for nickel, chromium, copper and silver plating. A small department for the manufacture of British Pharmacopia pharmaceutical preparations has, it is understood, also been added.

54. **Enamelling of Indian Steel Plates.**—Several experiments were carried out during the last year or two by Messrs. Ogale Glass Works (Enamel Department) for finding a formula for enamelling Indian steel plates used by them in their enamelling work for which they had to utilize imported steel plates. They have succeeded in finding a process, as a result of which they can now make use of Indian steel plates in place of the imported product.

55. **Celluloid Toys.**—The same firm was experimenting in making celluloid toys. Several moulds and a few presses have been bought for making toys from imported celluloid sheets. They have succeeded in making toys which compare favourably with those imported from Japan.

CHAPTER II

WORK OF THE DEPARTMENT FOR ORGANISED INDUSTRIES

56. The Department, as usual, received a number of requests for assistance in the solution of practical difficulties in the various processes of manufacture and for rendering technical advice. This chapter gives an account of how these requests as well as those for general assistance, were dealt with. It also contains suggestions as regards the scope which exists for new industries and describes the activities of the Department in regard to the dissemination of commercial and industrial intelligence and the administration of the State-Aid to Small Industries Rules.

Solving of Practical Difficulties in the Processes of Manufacture and rendering of Technical Advice.

57. A few of the requests received during the year for solution of practical difficulties and technical advice are briefly summarised here-below :—

(1) Advice on design and details of electrical heating elements for a small drying chamber in a factory.

(2) Process work details with reference to deep drawing of zinc containers for pocket batteries.

(3) Advice on cast iron scrap mix to make suitable light railings.

(4) Correct areas and layout of hot gas flues both for pot furnaces and glory holes in a local glass factory.

(5) A Chamber of Commerce requested for an estimate of a factory to make paper pins and paper clips, which was prepared and supplied.

(6) The owner of an oil mill in the mofussil wanted to know details about the methods of determination of fatty acid contained in the oil. The party in question was supplied with details regarding the apparatus and equipment required for this purpose and also the method of determining the fatty acids.

(7) A party interested in concentration of low grade chromite into a marketable commodity approached this Department for a detailed process. The party was supplied with a detailed scheme to carry out experiments on the ore in question. The instructions have been followed and it has been found possible to concentrate this ore into a marketable grade at competitive prices.

(8) A party interested in the production of caustic soda, bleaching powder and chlorine in Bombay approached this Department for a detailed scheme for such a project. A scheme for the production of these commodities was investigated and a detailed report regarding the cost of production as well as the amount of capital and working capital required for the enterprise was supplied to the party.

General Assistance to Industries

58. A number of new concerns came into existence during the year. Many of them were visited by a member of the staff of this Department. The concerns were given when required such advice as was necessary. They were also recommended to the several purchasing authorities in the country. In some cases the question of customs duty, supply of cheap raw materials and other facilities was taken up on behalf of the factories with the authorities concerned. Some examples of this kind of work are reviewed below :—

(1) The factory manufacturing wrought iron split pulleys in Bombay had again brought to the notice of this Department its difficulties in obtaining supplies of plate ends from the Tata Iron and Steel Co. at the concession rates hitherto allowed them by the Company. Owing to the high price of steel which was rising, the firm was unable to meet the request for the supply of the material but on this Department making further efforts in this connection the Company promised to consider the question favourably this time but stated that it would be unable to give concessional rates in future.

(2) A manufacturer of dry batteries in Bombay brought to the notice of this Department the levy of " chungi ", an octroi tax, on electric dry batteries in the towns of the United Provinces. According to the firm this levy of tax which ranges from 3 pies to 9 pies in the rupee in different places made it very difficult for them to sell their products in those markets in competition with the imported products. This Department brought the matter to the notice of the Director of Industries of the Province concerned with a view to move the local authorities concerned to exempt electric batteries of Indian manufacture from the levy of the tax with a view to encourage the indigenous industry. The municipal bodies which were consulted by the Provincial Director of Industries were, in some cases, not in favour of making reductions

in the tax as suggested. The views of some six municipalities received were communicated to the firm.

(3) A local firm manufacturing electric bulbs desired to get life tests of their bulbs carried out free of cost at the Government Test House, Alipore, and approached this Department for help in this connection. This Department recommended the firm to the Indian Stores Department, Simla, to consider their request favourably, as, otherwise, to get such tests carried out on payment according to the sanctioned schedule would mean a good deal of expense to them. The Director, Industrial Research Bureau, kindly agreed to undertake the work free of cost. Samples of lamps were drawn by this Department from the firm's premises and sent to Calcutta. Tests were made and the firm was supplied with a detailed report. It is gratifying to note that steps are being taken by the firm to make the necessary changes as suggested in the report in question. The assistance in this direction is being continued.

Scope for New Industries

59. In the last year's report mention was made of the following industries which could be established in this Presidency but no factories have so far been established for any of them :—

(1) **Billets and Sheets, etc.**—Bombay has one of the largest ship breaking and jerry yards east of Suez, where considerable quantities of mild steel scrap are available. This could be utilised for making billets, sheets or merchant bars for which there is a considerable local demand.

(2) **Manufacture of Torchlight Casings.**—There is a large local as well as provincial market for torchlight casings and there is no reason why these should not be made locally.

(3) **Manufacture of mild steel Piping.**—There is good demand for ordinary and galvanised iron piping for water supply and other uses. All the requirements of the market are at present supplied by imports.

(4) **Wood Screws.**—The consumption of wood screws in the hardware trade is considerable and there is no establishment at present in the Presidency for making them.

(5) **Manufacture of Sand and Emery Paper.**—Bombay in particular, and India in general, consumes a considerable quantity of sand and emery paper in the wood and metal industry.

(6) **Manufacture of Small Cutlery.**—Penknives, knives, scissors and other cutting instruments are largely imported into Bombay and enterprising industrialists should consider the question of the establishment of a factory equipped with modern power machinery for making these articles.

(7) **Manufacture of Veneers and Ply Wood.**—The local forests contain some timbers which have been favourably reported upon by the Forest Research Institute in connection with the manufacture of veneers and ply wood. Ply wood and veneers are now being increasingly utilised by local wood workers and factories; all the requirements of the market are at present met by imports.

(8) **Pencil Manufacture.**—There is one pencil factory in Madras and one in Bengal. There is no such factory in this Presidency. There is a good demand for pencils in the local markets which is largely met by imports. There seems no reason why a factory run on sound lines should not be successful here.

60. The following are some additional new industries for which there is scope in this Presidency:—

(9) **Manufacture of Spinning Frame Rings and Travellers for use in Textile Mills.**—All the present requirements are imported.

(10) **Manufacture of standard small engineering tools.**

(11) **Small metal screws from ferrous and non-ferrous metals.**

Commercial and Industrial Intelligence

61. As in the previous year, a number of enquiries for information on the following heads was received and dealt with in this office:—

(*a*) Trade openings.

(*b*) Statistical enquiries for figures of imports and exports of raw materials as well as finished products.

(*c*) Names of dealers and sources of raw materials.

(*d*) Names of Indian manufacturers of various articles.

(*e*) Enquiries covering standing of firms.

(*f*) Miscellaneous.

In the absence of a separate organisation in this Department for the systematic collection and dissemination of commercial and industrial intelligence and statistics, the existing staff of the Department carried on the work as best as possible utilising the following sources of information, viz. Statistical Publications of the Government of India, Geological Publications, Annual Reports and Bulletins published by the various Provincial Departments of Industries, Trade Directories, etc. Enquiries for technical advice and information were attended to by the specialist officers of the Department. Enquiries from abroad for opening commercial relationships with Indian firms were referred to the Director-General of

Commercial Intelligence and Statistics, Calcutta; and those from Indian firms desiring to establish trade connection with British firms were transferred to His Majesty's Trade Commissioner, Bombay. As usual, enquiries received from outside this province were passed on to the Director of Industries of the province concerned for disposal, with the necessary information wherever it was readily available.

The total number of enquiries falling under the heads (*b*), (*c*), (*d*) and (*f*), which were received and answered during the year under report was 718 as against 576 in 1935–36, and 381 in the year 1934–35. Under the head (*e*) 18 enquiries were dealt with as compared with 12 such enquiries in each of the two preceding years. Out of these 18 enquiries, 9 were from the Director-General of Commercial Intelligence and Statistics, Calcutta, 5 from the Assistant Stores Purchase Officer, Department of Industries, U. P., and one each from the Director of Industries, U. P., Director of Industries and Commerce, Jammu, the Director of Industries and Commerce, Mysore, and the Commissioner, Kurnool Municipality. In addition to dealing with written enquiries, a number of enquirers were personally interviewed at headquarters and helped with the necessary information.

This branch of the activities of the Department has not only grown in volume but also continued, as usual, to be both popular and useful.

State-aid to Industries

62. During the year under report, Rule No. 8 of the State-aid to Small Industries Rules, 1935, was amended so as to obviate the difficulty experienced by applicants in obtaining valuation certificates of their landed property from the prescribed authorities. Under the revised rule, the Director of Industries is authorised to obtain valuation certificates from the officers concerned free of cost.

During the year, a loan of Rs. 1,500 was granted to a party for the purchase of a new diesel engine and raw materials for manufacturing brass cocks, spray pumps and similar brass articles. Another loan of Rs. 2,000 was sanctioned to a party engaged in the manufacture of detergent products who required some liquid capital with which to purchase more raw materials, etc., in order that he might undertake to supply the full requirements of Railways, P. W. D. and Local Bodies to whom he is one of the approved contractors. The amount of the loan could not, however, be disbursed before the close of the year.

In addition, there were a dozen applications, mostly from textile, leather and chemical industries, for loans ranging from Rs. 1,000 to Rs. 10,000. In two cases, enquiries were in progress at the end of the year, but in all the other cases the applications could not be considered at all as the parties failed to furnish the requisite information or security.

CHAPTER III

EXPERIMENTAL INDUSTRIAL WORK AND PRACTICAL DEMONSTRATIONS FOR THE BENEFIT OF SMALL SCALE AND COTTAGE INDUSTRIES

NATURE OF WORK DONE

63. There are many small scale industries and cottage industries in this Presidency, the technical processes employed and the appliances used in which are capable of considerable improvements, so as to enable them to turn out better qualities and larger quantities of finished products without additional labour or cost and also successfully to compete with foreign imports. Work of this kind involves a careful study of each industry on the spot and considerable amount of experimental work. After the experimental work has successfully been concluded the new appliances and tools devised as well as the new technical processes employed have to be brought to the notice of, and popularised amongst, those interested in the respective industries by holding field demonstrations in the districts.

Apart from the improvements in the existing industries, the Department also explores the possibilities of new industries. In this connection it has invariably been found necessary to undertake investigation followed by experimental work first on a laboratory scale and then on a semi-commercial scale, and the existing facilities regarding raw materials, fuel and power as well as the economics of production and scope for markets have to be studied before recommending the establishment of new industries to the public. Thereafter, field demonstrations have to be arranged in order to bring home to the interested parties the practicability of the new industries suggested.

In either of the two cases mentioned above there are thus three stages of work, viz. investigation of the industry on the spot, experimental work in Bombay and later practical demonstrations in the districts for the benefit of the public. The work which the Department was able to do during the year in the matter of investigation, experimentation and practical demonstration in respect both of the existing industries as well as possible new industries, is described in this chapter.

This section of the Department works in close co-operation with the Industrial Research Bureau and Industrial Research Council recently established by the Government of India. The Council sought the co-operation of the various Departments of Industries in carrying out experimental work on different items. This Department agreed to undertake work on essential oils, viz. (1) Cinamon leaf oil, and (2) Citrus oils, i.e. oils of lime, orange, mandarines and citrus flowers.

Work for the Improvement of the Quality and Quantity of the Products of Existing Industries

PRACTICAL INVESTIGATIONS AND EXPERIMENTS

64. **The Gold Thread Industry.**—The gold thread spinning machine designed by the Industrial Engineer and patented (constructed by the Surat Engineering Works) has been well received by the gold thread manufacturers in Surat. There are now seven machines working with several more on order. Considering that the cost of the new type of spinning machine is nearly four times that of the local old type of spinning machine, the progress made is very good. The royalty recovered during the year in respect of this machine was Rs. 200.

65. **Glass Bangle Manufacture in Cottages and Villages.**—*General Survey.*—India may be said to be the pioneer in the field of glass bangle manufacture. The foreign countries which to-day are manufacturing glass bangles have learnt the art from India. So far as this Presidency is concerned, this ancient industry is confined at present to certain villages in the districts of Bijapur, Belgaum, Dharwar and Thana. It is practised as a cottage industry and the old methods that are still in use are simple but crude. Due mainly to the low temperatures attained in the type of wood-fired furnaces in vogue and the crude processes and tools and appliances in use, the production is poor both in quality and quantity.

In foreign countries where also this industry is carried on on a cottage basis, it has made great strides of progress as the result of assistance received from researches carried out partly or wholly subsidised by the State. The foreign countries are thus able increasingly to import into India glass bangles of varied designs at low prices and these command a ready market in this country and compete easily with the products of the indigenous industry. Our cottage industry, therefore, finds it very difficult to sell its goods in appreciable quantities or at reasonable prices.

The figures of imports into the Presidency—*vide* table given below—show the very large volume of trade in imported bangles, which is now slowly squeezing out the cottagers from their trade. Unless some systematic efforts are made to train the cottagers in improved methods of furnace practice and the use of improved tools and methods of manufacture necessary for improving the quality of bangles manufactured, a very old cottage industry would be wiped out.

The extent of imports and the competition is evidenced by the statistics give below :—

Statistics of Glass Bangle Imports

Country.	1931-32	1932-33	1933-34	1934-35	1935-36
	Rs.	Rs.	Rs.	Rs.	Rs.
Czecho Slovakia ..	17,29,397	16,34,686	12,69,796	12,14,288	11,54,563
Japan ..	15,07,662	22,33,214	13,38,554	17,71,069	13,52,757
Rest of the countries ..	2,17,041	1,20,633	1,05,087	1,21,742	2,11,465
Total imports into India .	34,54,100	39,88,533	27,13,437	31,07,099	27,18,785
Share of Bombay ..	23,90,562	28,21,962	20,11,420	21,59,711	16,52,896
Percentage, Bombay to all India.	69·00	72·00	74·00	70·00	60·80

In view of the above observations preliminary investigations were made in the various districts mentioned above and these showed that the necessary raw materials and skilled labour are available, and there exists a very large market for the finished products. All that is now required is the introduction of improved processes for making glass and appliances for making bangles of different qualities. For this purpose experimental work in the following direction was considered likely to yield results of promise :—

(1) Improvements in the existing type of wood fuel cottage glass furnaces.

(2) Manufacture of glass from local batch materials.

(3) Introduction of hand-worked machines for making glass.

(4) Introduction of other processes for making artistic types of bangles.

66. *Experimental Work.*—Some preliminary experimental work was done in the above connection and whilst on leave out of India during the year, the Industrial Engineer took the opportunity of visiting some glass works in England through the good offices of Prof. Turner, Glass Technical Institute, Sheffield, to whom the thanks of the Department are due. On his return the experimental work was continued by the Industrial Engineer in the following directions : (*a*) Improvements in the wood-fired furnace for actual manufacture of glass from batch materials, (*b*) Hand-worked machines, (*c*) Enamels for glass bangle decorations. The different works are detailed below.

67. *Glass Furnace (Work done in connection with)*—

(1) Testing out of 15 and 25 lbs. glass pots in the furnace, manufactured by the Bombay Pottery Ltd.

(2) Design and construction of a Pot Heating Chamber utilizing the waste flue gases for heating new pots.

(3) Construction of a glass bangle enamelling furnace utilizing the waste heat gases to the chimney.

(4) Experiment with a six-pot furnace in place of four-pot furnace utilizing the existing combustion chamber of the last year's furnace.

Work in connection with items (1), (2) and (4) has given very satisfactory results; work on item (3) is in progress.

68. *Glass Manufacture (Uses of Raw Materials available for)*—

(*a*) Using sand from Ferozabad, U.P.; and ground sandstone from the villages of Ghodgeri, Belgaum, and Khanapur, in the Bombay Presidency.

(*b*) Use of broken soda bottle and beer bottle glass for mixing with batch materials, for making certain glass colours.

(*c*) Use of local lime and imported chemicals of various qualities.

(*d*) Economies of glass manufacture locally, by cottagers using materials under (*a*), (*b*) and (*c*) above, against ready glass purchased from large glass factories.

Work under (*a*), (*b*), (*c*) and (*d*) has given good results. Different colours of clear glass can be made in the furnace with only batch materials and/or cullet glass. It has been carefully estimated from actual results that the cottager can easily make any colour of glass from the raw materials near his home at a cost which is estimated to be 50 to 80 per cent. cheaper than what it would cost him to purchase and transport the glass to his village.

The use of broken soda bottles, now available in most places as waste material, as cullet for mix with batch materials, has given fairly satisfactory results for the production of glass of green, purple, amber and blue colours.

The previous troubles from glass pots which used to break often has been to a large extent overcome. New types of pots constructed both by Morgan Crucible Co. of London and the local Pottery Works, have been utilized. Due to the higher costs of the former make, the locally made crucibles are to be preferred on basis of life plus costs. Locally made pots have been continually in service for over two months working 24 hours per day without any signs of breakdown. Furnace

refractory materials have stood six months' continual service without any signs of distress and are expected to continue to do so.

69. Experimental work is being continued for the further cheapening of glass costs ; for the design and construction of small machines, such as grinding of bangles, pounding of glass cullets, and enamelling designs and processes; and the manufacture of bangles by the spiral process similar to the one adopted by the large bangle factories, in place of the present cottage system of solid spun bangles.

An analysis of the local lime and sand is also being made for purposes of using suitable cheap decolorizer.

The results obtained so far with the six-pot furnace show that it would be economical to work, and be able to supply sufficient glass to keep six cottage four-pot bangle furnaces or 40 men continually employed in making bangles and would serve as an economical unit for a village. The glass bangles made from the different coloured glass melts are superior both as to brightness, freedom from seed and evenness in lines, to the present bangles made in the villages, and the cheaper types made in Ferozabad. The glass furnace and the work done was recently inspected by the members of the Industrial Research Council who commended the work done.

When the work is successfully completed, field demonstrations will be arranged in the centres of this cottage industry.

70. **Village Oil Industry.**—In paragraph 65 of last year's report a mention was made that this Department had requested the Government of Bombay to finance a scheme for the development of the village oil industry. Government were pleased to accord administrative sanction to the scheme in question. The broad lines of this scheme are as follows :—

(*a*) Mechanical investigation and experiments.

(*b*) Chemical investigation and experiments.

(*c*) Field tests of (*a*) and (*b*) above.

Investigation and experimental work for the development of this industry will be started when funds are made available.

Work for the Development of new Industries

INVESTIGATION AND PRACTICAL EXPERIMENTS

71. **Imitation Gold Thread.**—At present there is practically very little imitation gold thread made locally. All the local market requirements are supplied mainly from the continent. It is estimated that the average annual value of the above goods sold in the different markets of India

comes to several lakhs of rupees. This is borne out by the figures of imports given below :—

Year	Value of Imports	
	Bombay	India
	Rs.	Rs.
1929-30	4,81,530	7,13,561
1930-31	4,14,806	6,27,686
1931-32	195,596	4,60,492
1932-33	2,43,905	6,10,983
1933-34	99,988	4,19,353
1934-35	64,901	3,05,887
1935-36	1,09,906	4,25,369

In this Presidency the manufacture of gold thread is carried out on a large scale. This Department has given considerable assistance in organising this industry and introducing different types of improved machines with very satisfactory results. Imitation gold thread is at present not made in India to any appreciable extent. Large quantities are imported from Germany and other countries. Although the values of the imports are small, their volume measured quantatively is considerable and it will be seen that this industry would give employment to several hundreds of workers at Surat, Yeola and Poona. Having regard to this possibility, the Industrial Engineer, when he was on leave out of India, visited several wire-drawing factories and electro-plating works in England and studied their processes with a view to their adoption in the local manufacture of Imitation Gold Thread. The work in connection with the introduction of the Imitation Gold Thread Industry as a subsidiary industry to the existing Gold Thread Industry of this Presidency would be as follows :—

(*a*) Experimental work in fine copper wire drawing in existing factories.

(*b*) Annealing experiments for fine wire.

(*c*) Electro-plating of copper wire and/or copper thread with base metals plating materials.

After the work outlined above has been completed satisfactorily, field tests and actual demonstration work will be undertaken at the centres of the Gold Thread Industry, viz. the towns of Surat, Poona and Yeola.

The usual preliminary investigations have been made and the experimental work will be undertaken as soon as funds are available.

72. **Purification of Salt for the Manufacture of Caustic Soda.**—The work on this investigation mentioned in the last year's report is in progress.

73. **Aluminium and Aluminium Salts.**—A bulletin embodying most of the work done in this connection on the possibility of production of Aluminium in Bombay was published. The bulletin was well received by enterprising businessmen in Bombay. It is hoped that eventually a plant for the production of aluminium in Bombay will come into existence.

74. **Magnetite Sand from Ratnagiri.**—As mentioned in the last year's report, work on the concentration of magnetite sands from Ratnagiri was carried out in co-operation with a party holding prospecting license for the area. The party installed a magnetic separator and other equipment necessary for concentration of the sand. The investigation revealed that it is possible to concentrate the sands which contain about 27 to 29 per cent. TiO_2 into a product containing 46 per cent. and more TiO_2 which is a marketable product. The yield of the marketable product, however, is so low that at the prices ruling now for ilmenite it will not be possible to concentrate the sands economically at present.

75. **Nicotine and Nicotine Insecticides.**—The laboratory experimental work having been successfully concluded, a pilot plant for the production of nicotine and nicotine insecticide was set up in co-operation with a party interested in the production of nicotine. The working of the pilot plant will show definitely whether it will be profitable to put up a commercial plant or not. The results obtained so far reveal that the present prices of nicotine and nicotine insecticides are such that it will be profitable to manufacture nicotine and nicotine salts in the Belgaum District and that it will not be difficult to find a ready market for the same.

76. **Cashew Nut Shell Oil.**—Further work on the investigation of the possibility of production of this oil in large quantities in the Presidency was undertaken during the year. It is proposed to put up in the near future a pilot plant for the production of this oil and to work out enough data regarding cost of production etc., which will eventually help in the establishment of a commercial plant in the Bombay Presidency for the production of this oil. Recently this oil has found considerable application in arts and industries in foreign countries and during the year 1936 some 200,000 gallons of this oil are reported to have been exported to America and Germany. There is thus a great scope for the development of this industry in the Presidency.

It will be of interest to note that a short paper on the " Cashew Nut Shell Oil and its Utilisation " was submitted by a scholar of this Department.

who had been carrying out this investigation under the Industrial Chemist, to the Industrial Research Council in connection with the open competition organised by that body. The scholar in question was awarded a prize of Rs. 150 for this original piece of work.

77. **Peppermint Oil.**—Work on this oil is still in progress and the results so far obtained indicate that there is a great possibility for the production of this oil in the Presidency.

78. **Karvi Oil.**—Karvi (*Strobilanthes Ciliatus*) is a common shrub found on almost all the hills of the Deccan. The stems of this plant are used in the construction of mud-walls and fences in the villages. The plant yields flowers with strong aromatic odour. The oil from these flowers has been distilled and is being investigated. If the oil could fetch a remunerative price, it is possible that distillation of Karvi oil can become a very good small cottage industry in the hill tracks of the Deccan.

79. **Lime or Lemon Oil.**—Experimental and investigation work on the production of this oil was completed during the year under report. The commercial plant mentioned in the last year's report had actually been set up and worked during the last season. Several hundred pounds of lime oil were produced and the entire production was sold without any difficulty at a fairly remunerative price. The party concerned met the entire cost of the small plant for the production of the oil from the sale proceeds of the oil and made a profit of a few hundred rupees. The party received offers from foreign firms in the United Kingdom as well as on the Continent to buy the entire production of oil during the coming season. A forward contract has been made for the entire production for the season 1937-38.

As a result of the work of the Department, a new small scale industry has thus been established in the Presidency.

80. **Calcium Citrate.**—Very encouraging offers have been received from importers of calcium citrate into the United Kingdom to whom samples of citrate prepared were sent. Arrangements are, therefore, being made to produce calcium citrate during the coming season on a semi-commercial scale. It has been definitely found that the production of calcium citrate along with the production of lime oil referred to previously will be a profitable proposition and that there will not be any difficulty in finding markets for the same.

EXPENDITURE ON EXPERIMENTAL WORKS

81. It may be mentioned that there is no special staff for industrial experimental work as such. The Industrial Engineer and the Industrial Chemist devote a part of their time to this work. The latter officer has the help of the Industrial Chemistry scholars of this Department. The

chemical experimental work is carried out in the laboratory of this Department in the Royal Institute of Science and the engineering work in the Victoria Jubilee Technical Institute, Matunga. The total expenditure incurred during the year on equipment, materials and field demonstrations was Rs. 5,739. This includes the salaries paid to temporary field demonstrators entertained for a few months at a time.

CHAPTER IV

WORK OF THE DEPARTMENT FOR COTTAGE INDUSTRIES

HAND WEAVING INDUSTRY

82. The Department continued its activities to assist and advance the hand weaving industry which is the premier cottage industry of the Presidency by means of its weaving schools and demonstrations. The object of these institutions is to demonstrate and train workers engaged in hand weaving and allied industries in the use of improved and economic appliances and methods. Dyers and calico printers were also helped in adopting improved and economic methods in dyeing and printing, through a Dyeing Demonstration.

During the year under review the Department maintained 5 weaving schools for *bona fide* weavers, 2 weaving schools for agriculturists, 7 cotton weaving demonstrations, 3 wool weaving demonstrations, one cottage sizing set demonstration, one dyeing and printing demonstration and a Central Hand Weaving Institute at Poona for fulfilling the above object. Except the Institute at Poona, all the other institutions are peripatetic.

In the weaving schools for *bona fide* weavers the course covers a period of one year during which weaving of high class saris, dhoties, coating, shirting and other cloths is taught, weaving of finer counts and use of up-to-date designs being a special feature.

In the weaving schools for agriculturists the course prescribed covers a short period of six months and weaving of khadar, gudar, chaddar, dhoties, saries, etc. is taught. In both types of schools, scholarships of Rs. 3 per month for the first three months, and two prizes of Rs. 2 each per month for the whole course, for exemplary attendance and excellent work respectively are granted to the students.

83. **Weaving Schools for *bona fide* Weavers.**—The five peripatetic weaving schools for *bona fide* weavers were conducted at five centres during the year under review and were able to introduce, in all 170 fly

shuttle looms and 123 improved types of dobbies. The details of the number of looms introduced at each centre are stated below.

Division	District	Place	No. of fly-shuttle looms introduced
Southern Division ..	Bijapur ..	Ilkal ..	16
Central Division ..	Ahmednagar ..	Ahmednagar ..	51
Central Division ..	East Khandesh ..	Savda ..	38
Central Division ..	Nasik ..	Chandor ..	11
Northern Division ..	Ahmedabad ..	Chaloda ..	54

Being peripatetic schools, these are to be moved from centre to centre as soon as each finishes training the batch of weavers attending it. During the year under report, however, most of the schools were continued at the same centres as reported last year to train fresh batches of students, in compliance with the request of the local weavers who had realised the good and beneficial work done by these schools. The school at Nasik in the Nasik District, after completion of its work at that centre, was transferred to Chandor on 1st April 1936.

84. **Weaving Schools for agriculturists.**—These are maintained exclusively for agriculturists with a view to train them in hand weaving as a part-time occupation so that they could earn something in their spare time. Of the two such peripatetic schools maintained during the year, one was in the Southern Division and the other in the Northern Division.

(*a*) As reported under paragraph 54 of last year's report, the weaving school for agriculturists working at Hulkund in the Southern Division had admitted a fresh batch of students in January 1936. These students completed their course in June 1936. It is gratifying to note that the leading agriculturists of this village, and especially the Chairman and Secretary of the Hulkund Co-operative Society took a keen interest in the training in hand weaving imparted by the school to young agriculturists and arranged for providing the stocks of yarn required by the agriculturists and also for marketing their products in the village. The students who passed out from the school were assisted by the school staff in setting up their own looms and starting work in their cottages. Thus ten more fly shuttle looms were introduced as a result of the activities of this school. The school was transferred to Murgod, a village in Parasgad Taluka in the Belgaum District, where it started its work in November 1936.

(*b*) The weaving school for agriculturists in the Northern Division finished its work at Bordi in October 1936 when the second batch of students completed their course. Nine looms and a dobby were introduced at Bordi. The school was then transferred to Yadvan, a village in the Palghar Taluka of Thana District, at the suggestion of the Assistant Collector, Dahanu Prant, and it started its work there from November 1936 with a batch of ten students.

85. **Cotton Weaving Demonstrations.**—These are equipped with two fly-shuttle looms on one of which the demonstrator works and demonstrates the modern method in weaving while on the other he gives practice to the local weavers attending the demonstration. During the year under report the seven cotton weaving demonstrations maintained by the Department worked at the following places where, in all, 92 looms were introduced as detailed below, in addition to 52 improved types of dobbies and six *galichas* (foot carpet) weaving frames:—

Division	District	Place	No. of fly-shuttle looms introduced
Southern Division ..	Dharwar ..	Hubli ..	30
Southern Division ..	Belgaum ..	Khasbag ..	18
Southern Division ..	Bijapur ..	Guledgud ..	....
Central Division ..	Satara ..	Yelur ..	2
Central Division ..	Sholapur ..	Sholapur ..	14
Cantral Division ..	Sholapur ..	Tembhurni ..	5
Northern Division ..	Panch Mahals ..	Katwara ..	13
Northern Division ..	Kaira ..	Bochasan ..	10
Northern Division ..	Panch Mahals ..	Garbada ..	....

86. **Cottage Sizing Set Demonstration.**—Four cotton weaving schools have been equipped each with a Cottage Sizing Set to train weavers on the machine in the preparatory processes of warping and sizing by improved methods.

A separate demonstration equipped with a sizing set, and fly-shuttle and carpet weaving looms was also maintained in charge of one head master and one assistant master at Kharepatan where it finished its work in December 1936. It was then transferred to Mhapral, a village in the Ratnagiri District. It demonstrated to the local weavers improved methods of sizing and *galicha* weaving.

87. **Wool Weaving Demonstrations.**—There were only two wool weaving demonstrations under the control of this Department, one working in the Southern Division and the other in the Central Division. In addition, with a view to demonstrate also wool carding, spinning and weaving by improved implements, a cotton weaving demonstration working at Garbada in the Northern Division was converted into a wool weaving demonstration in June 1936. The work of these demonstrations during the year under report is summarised below :—

(*a*) The wool weaving demonstration in the Southern Division finished the training of ten boys admitted in December 1935 in the month of May 1936. As a result, eight fly-shuttle looms and two *galicha* looms were adopted by the students. Another batch of nine students attended the demonstration from July 1936 and completed their course in February 1937. They are expected to set up their own looms. At this demonstration instructions were imparted in weaving rugs, shawls, *galichas*, etc., and in the dyeing and milling processes. In addition to this, the boys were also trained in weaving coarse cloth such as cotton chaddars, towels, etc., of different designs with the help of a shedding or treadle frame so that whenever the sales of woollen products became slack they could turn to the weaving of towels and chaddars which would find a ready market. The Collector of Bijapur was good enough to encourage the boys attending the demonstration by offering scholarships to them from the grants at his disposal.

The carding and spinning work is generally done by women and it was found that they hesitated to come to the demonstration for training under male demonstrators. The Collector of Bijapur who took a keen interest in the uplift of the poor wool weavers of his district, arranged for the appointment of part-time female staff in the demonstration for the above work as an experimental measure from the grants at his disposal. A part-time female wool carder and a part-time female wool spinner were engaged in June 1936 to see if advantage of the arrangement would be taken by the women workers. It is gratifying to note that about a dozen female wool carders and spinners received training and seven improved spinning wheels and two carders were introduced ; the new type of spinning wheel gives twice the production over the old type wheel, and the quality of yarn produced is much superior.

The demonstration also introduced two fly-shuttle looms, one *galicha* loom, two spinning wheels and two carding bows in the Belgaum Central Prison where the Assistant Wool Weaving Demonstrator was deputed for some time to demonstrate the use of improved implements and modern methods in wool carding, spinning and weaving.

(*b*) The wool weaving demonstration in the Central Division completed its work at Nayagaon in the Nasik District. This demonstration not only trained the wool weavers in wool carding and spinning and weaving of blankets and rugs, but also taught them the processes for the dyeing of woollen yarn and milling of rugs. Two looms, one spinning wheel and one beam were introduced at Nayagaon during the year under review in addition to the 12 looms and a spinning wheel introduced last year. The demonstration was transferred to Dubere in January 1937 where it is working at present.

(*c*) The cotton weaving demonstration at Garbada which was converted into a wool weaving demonstration for the Northern Division started its work at Dohad in the Panch Mahals District in June 1936 as an experiment. The local wool weavers were very conservative and averse to adopting anything new in their methods of work. In the beginning, therefore, the importance of improved appliances and modern methods was explained to them and interest was gradually created in them for the new methods and appliances. The demonstration trained nine wool weavers in carding, spinning and weaving during the short period from June to March.

88. **Dyeing Demonstration.**—This demonstration continued its activities at Sampgaon till May 1936 assisting the local weavers and dyers in adopting modern methods in dyeing and printing. It was transferred to Hukeri in the Belgaum District in June 1936.

The weavers of Hukeri, prior to the opening of the dyeing demonstration there, largely depended on the imports of dyed yarn and silk from Rabkavi and Belgaum. No real silk was used nor calico and mica printing work in vogue. Hukeri is surrounded by several hand-weaving centres, e.g. Sankeshwar, Yamkanmardi, Shindi-Kurbet, Gokak, Sulebhavi, Pachhapur, Vantamuri, Madihal, etc. Steps were, therefore, taken to bring to the notice of the weavers and dyers of Hukeri and adjoining weaving centres the opening of the dyeing and printing demonstration at Hukeri by the Department. Five weavers of Hukeri regularly attended the demonstration and learnt improved methods of dyeing. Two of them set up their own cotton and silk dyeing works on a cottage basis. Eleven persons received training in calico and mica printing. An enterprising Muhammadan weaver who had started a small weaving factory at Hukeri with six automatic handlooms also received complete training in the art of dyeing fast colours.

Two members of the Yamkanmardi Weavers' Co-operative Society came to Hukeri for training. On finishing training they returned to their place and are reported to be doing satisfactory work for their society in this direction.

Four weavers attended the demonstration from Vantamuri, two of whom after training set up their own small dye-house in Vantamuri which is reported to be doing well.

Two men from Shindi-Kurbet who attended the demonstration, on returning home after training, started their own works in silk and cotton dyeing and it was reported that they were doing well in the line.

The proprietor of a dyeing and printing work in Pachhapur spent about 15 days with the demonstration at Hukeri receiving training in the latest and improved methods of printing. He is reported to be doing well in his business of printed table covers, scarves, handbags, etc.

One weaver from Madihal received training in the art of dyeing and calico and mica printing at the demonstration and started his work at his place after training.

One agriculturist of Rawapur of Satara District being interested in the art of dyeing and printing as a spare-time occupation learnt the same under the dyeing demonstrator at Hukeri and it was reported that the training has done him good.

Two persons came to the demonstration from distant places and received instruction in printing.

The demonstration was temporarily transferred from Hukeri to Poona to participate in the Poona Exhibition from 7th March to 18th April 1937. The stalls of the demonstration were well attended, and about 38 persons from Poona and different places like Nasik, Yeola, Nagar, Sasvad, Ilkal, Chiplun, Ratnagiri, etc., received training. Two workmen of a dye-house in Poona were trained in hand-block printing. Various enquiries regarding dyeing and printing were also attended to by the Demonstrator during the year under review.

89. All the abovementioned institutions are peripatetic and they are scattered in the different districts of Bombay Presidency for the benefit of handloom weavers, and dyers and printers. Three weaving assistants supervise and control the hand weaving schools and demonstrations in the Southern Division, Central Division and Northern Division respectively, whereas the dyeing demonstration is conducted by a dyeing demonstrator with one manual assistant under him.

90. **Expenditure on Peripatetic Institutions.**—The statement given below furnishes particulars of the income from and expenditure on all the abovementioned peripatetic institutions during the year :—

Credit. *Debit.*

Particulars.	Amount.	Particulars.	Amount.
	Rs. a. p.		Rs. a. p.
(*i*) Sale proceeds of articles, etc.	2,532 11 5	(*i*) Pay of officers ..	....
(*ii*) Fees from students* ..	....	(*ii*) Pay of establishment ..	24,066 3 0
(*iii*) Miscellaneous ..	50 5 3	(*iii*) Wages of workmen ..	102 3 9
		(*iv*) Allowances and Honoraria.	4,419 8 6
		(*v*) Scholarships and Prizes .	1,089 0 0
		(*vi*) Stores purchased ..	3,516 2 11
		(*vii*) Other miscellaneous expenses.	3,789 12 9
Total ..	2,583 0 8	Total ..	36,982 14 11

*Instruction in all the institutions is imparted free of charge.

91. **The Government Hand Weaving Institute, Poona.**—This Institute provides two courses of instruction, viz. Advanced and Artisan courses.

In the Advanced Course students who have studied up to the VI Standard in English are admitted. Ordinarily 15 students are admitted each year to this course. Preference is given to candidates connected with the handloom weaving industry. The course extends over a period of two years, during which instruction in both the theory and practice in the technology of weaving is imparted. The medium of instruction is English.

The Artisan Course is mainly intended for *bona fide* weavers, preferably literate. The number of admissions is limited to 15. This course is of one year's duration and the instruction is imparted in vernacular.

No fees are charged for either course of instruction and twelve scholarships varying from Rs. 5 to Rs. 20 each per month are granted to deserving students. The Institute is equipped with various types of modern handlooms, sizing machines and dyeing apparatus.

The Department arranges for the examination of the students by technically qualified men. At the last sessional examination held in April 1936, 36 out of the 40 students who appeared, passed. Seven students of the Institute have also passed the examination of the City and Guilds Institute of London held locally. At the end of the year 1936-37

there were 42 students on the rolls of the Institute—15 in the second year advanced course, 15 in the first year advanced course and 12 in the artisan course.

During the year the students were taken on an instructive excursion trip in the Northern Division to acquaint them with the different processes and machines connected with the Textile Industry, particularly hand worked appliances.

92. The total expenditure incurred during the year under review on the maintenance of this Institute was Rs. 12,940-13-3 as detailed below; there were no receipts :—

Credit. *Debit.*

Particulars.	Amount.	Particulars.	Amount.
	Rs. a. p.		Rs. a. p.
(*i*) Sale proceeds of articles ..	....	(*i*) Pay of officers ..	....
(*ii*) Fees from students ..	....	(*ii*) Pay of establishment ..	7,229 13 0
(*iii*) Miscellaneous ..	....	(*iii*) Wages of workmen ..	....
		(*iv*) Allowances and Honoraria.	654 13 6
		(*v*) Scholarships ..	1,869 0 0
		(*vi*) Stores purchased ..	546 15 3
		(*vii*) Other miscellaneous expenses.	2,640 3 6
	Nil	Total ..	12,940 13 3

93. **Improvements in Hand Weaving Appliances.**—The Department continued to demonstrate improved hand weaving appliances designed by it. The beam system, mechanical dobby, etc. to which a reference was made in paragraph 83 of the Annual Report of this Department for 1934-35 were further popularised. 26 beams and 9 mechanical dobbies were introduced during the year.

94. **Miscellaneous activities of the Weaving Section.**—In addition to running weaving schools and demonstrations, the weaving staff rendered assistance to the public in solving their technical difficulties in hand weaving and allied industries, supplying them estimates for small handloom and dyeing and printing factories and helping in the establishment of weaving classes. Some examples of such work are noted below :—

(1) Detailed advice was given to a party regarding fast-colour dyeing on real silk;

(2) A party was furnished with information on Cutch dyeing.

(3) One Mission desired to introduce hand weaving in some schools for Bhil boys and wanted to have a man trained for the work. The man deputed by the Mission was given the necessary training and advice in the matter.

(4) An estimate for an up-to-date handloom weaving factory with 25 looms was prepared and supplied to a party.

(5) Technical advice and assistance were given to the Joint Secretary, Parsi Panchayat Funds and Properties for organising a handloom department in the Parsi Panchayat Trustees' Industrial Home at Tardeo.

(6) A scheme for a weaving school for agriculturists was prepared and supplied to the Union Co-operative Education Society, Hulkoti.

95. **Investigation into the condition of Hand Weavers.**—The investigation in connection with the hand weaving industry detailed on page 23 of last year's report was carried on further during the year under report in the following centres :—

Northern Division.—Chikhli, Abrama, Surat and Broach.

Southern Division.—Belgaum, Gadag, Hubli, Dharwar, Lakkundi and Gajendragad.

Central Division.—Dharangaon, Bhingar, Sholapur, Malegaon, Parola, Nasik, Satara, Kharda, Chandor and Dhulia.

Owing to trade depression and severe mill competition in the staple cloths turned out by handlooms, the condition of hand weavers except in the centres where the hand weaving industry is well organised, showed no improvement.

CHAPTER V

WORK OF THE DEPARTMENT FOR COTTAGE INDUSTRIES—(Contd.)

TANNING INDUSTRY

96. The tanning industry is one of the important industries of the Bombay Presidency. Although there are only five tanneries in the Presidency which come under the Indian Factories Act, there are a number of organised tanneries run on commercial lines which do not use machinery and hence do not come under the Act. Further, there are large numbers of village tanners all over the Presidency. Almost every village has its own "tannery" and the Taluka towns and larger villages and towns have hamlets of Dhors, Chambars, Khalpas or Mochis who depend on leather-making for their livelihood.

The Tanning Section of the Department of Industries was started at the beginning of the year under review. The starting of the Section was

made possible by the allocation of the required sum from the Government of India Village Improvement grant. Later in the year the Government of India ruled that work of this nature should not be financed from their Village Improvement grant. The Government of Bombay accordingly decided to finance it from the provincial revenues from the beginning of 1937-38 as a part of the normal activities of the Department. As mentioned in the last year's report the Tanning Expert took charge of his post from the 1st April 1936. In order to enable him to plan subsequent work the Tanning Expert toured the different parts of the Presidency and made a preliminary survey of the industry. He found that most of the village tanners turned out work of a very inferior kind and that the implements used were very crude and the processes defective. Besides, due to intense poverty many a village tanner could not afford a roof over his tan-yard so that the colour of his leather was ruined and there occurred considerable loss of tanning materials by oxidization.

On this study of local conditions and scrutiny of the processes adopted a course of demonstrations calculated to improve the work of rural tanneries and hide-curers was planned. It was decided to bestow attention to vegetable tanning in the first instance, and then take up the other tanning processes gradually.

97. **Organisation and Training of Demonstration parties.**—It was stated in last year's report that Government had sanctioned the organisation of two peripatetic demonstration parties in flaying and tanning and that the work of organisation of the parties had been taken in hand by the Tanning Expert. Each party consists of one Demonstrator and one assistant. It must be said that a certain amount of difficulty was experienced in recruiting suitable men for these four posts. Arrangements were made for their preliminary training in Bombay from the 1st July 1936. They were put through a course of flaying first at the slaughter house at Bandra and then at Chembur, the dumping ground of the dead cattle of the City. Practical training in tanning was given to them at the Western Indian Tanneries, Ltd., Dharavi, where the Manager kindly allowed the use of a portion of his tannery for the purpose. The equipment of the parties was purchased and the demonstration staff worked on a few packs of skins right from raw to crust with their own equipment.

A short course in staining and dyeing was also given to them at the laboratories of Messrs. Imperial Chemical Industries, Bombay, who were kind enough to arrange for this. The use of acid and basic colours and shade matching was done. Messrs. Havero Trading Co., Bombay, also extended the same courtesy and here the demonstration parties were not only put through a course in staining and dyeing but also in the finishing of leather with pigment colours. The use of the spray plant and the finishing of leathers with cellulose colours were also taught.

All the practical work of the parties was supervised by the Tanning Expert.

98. **Tanning Demonstration at Chamadewalaki-Wadi.**—When the training of the parties was completed, both the parties were posted at the Chamadewalaki-Wadi, a tanning village near Khar, Bombay Suburban District. They started their work there under the supervision of the Tanning Expert. The local tanners were shown improved methods of tanning and finishing which were all demonstrated practically with the small portable tanning unit that had been taken there by the demonstration parties. The demonstrations at the Wadi were popular and led to the local Committee starting a small tanning school at the Wadi. The tanning centre was visited by the Collector of the Suburban District who was very well impressed by the work done. At the recommendation of the Department the Collector sanctioned a grant of Rs. 1,700 from the Rural Uplift Funds for the building of a tanning school at the Wadi. The plans for the school were supplied by the Tanning Expert who also drew up a syllabus for the course, which was duly approved by the Committee of Direction for Technical Education. This school at the Wadi which is the first of its kind in this province was opened in January 1937. Similar schools have lately been started in London and are called " Junior Technical Schools ". Briefly, the function of these schools is to train juveniles for entry into appropriate trades. Boys enter at the age of nine and stay for a period of four years. The major portion of the time is spent in general elementary education and a small part in the appropriate trade work. It is expected that on leaving these schools the boys will join the trades concerned, and they will by then have developed a flair for it and a loyalty towards it—two very important considerations.

99. **Tanning Demonstration at Dahiwadi.**—One of the parties was shifted from Khar to Dahiwadi, a small town in the Satara District. There are nearly 16 families of Dhors in the Dhoriwadi of this town. The demonstration party started work here on the 1st of October 1936. The demonstrations have been very effective and as a result, the quality of the products of this tanning centre improved considerably. Originally the skins tanned in this Wadi were of a very bad colour and only enjoyed a limited market. Now because of the improved colour and workmanship it is possible to put them to a greater variety of uses and they are selling further and further afield. Dhors from Gondhawla, Palsi and Mawali villages nearby, have also been attending the demonstrations and more leather of better quality is being produced in the locality than before. The marketing of this improved product has also been attended to and the Tanning Expert has been able to introduce it in markets outside the Presidency. The use of improved processes has resulted in the production of a better quality of leather at a lower cost than before. The prices obtained for this improved quality have been considerably higher. The

Department has approached the Registrar of Co-operative Societies requesting him to start a producers' co-operative society for the tanners at Dahiwadi. Preliminary investigations have been started, and it is hoped that a society will be registered in the near future.

The whole village has been taking an active interest in the demonstrations. A grant of Rs. 100 has been obtained for this centre from the Collector of the district and the money is being expended in the purchase of tools and implements for the use of the local Dhors who are too poor to purchase them themselves. A small shed will also be built in the village when the site for the same is sanctioned by the Collector. The Tanning Expert has also been able to advertise in Bombay the goods turned out in this village and now there is open to them a wide market instead of only the limited circle of local buyers who kept the prices very much under control.

100. **Tanning Demonstration at Talegaon.**—The second demonstration party was shifted from Khar to Talegaon Dabhade, a tanning village in the Poona District, at the end of January 1937, and has been working there since then. The work at this centre is not yet complete but the demonstration has been popular and the Dhors are taking advantage of it. The output of the village has improved but quite a good deal more has to be done before the party can be shifted to the next centre. A grant of Rs. 100 has been obtained for this centre also, from the Collector and the same will be expended by the Department in providing the Dhors with a shed and a few implements.

101. **Demand for the Demonstration parties.**—According to the programme at present chalked out, one of the two tanning demonstration parties will work in the various tanning centres in the Southern Division and the other similarly in the Central Division. Requests in the meantime have been received from various Collectors asking for the tanning demonstration parties to be posted in their districts. The total number of centres suggested by the Collectors so far comes to 21 in the Northern Division, 16 in the Central Division and 23 in the Southern Division. In addition, a few petitions have also been received signed by the Dhors themselves requesting the Director to send a tanning demonstration party to their respective villages. As it will not be possible for the existing two parties to cope with the large demand for demonstrations at various centres, the Department approached Government for the sanction of a third party to be posted in the Northern Division and this has been sanctioned by Government.

102. **Students trained as teachers.**—Mr. M. K. Bhagwat, a Chemistry graduate of the Bombay Presidency joined the demonstration party for training in June 1936 and continued to work with the party all the time it was at Khar. The Tanning Expert was also able to initiate him in the business part of the industry. He made very good progress and is good at practical work also. The Chamadewalaki-Wadi Committee have taken

him on as the teacher in their tanning school and he has been filling the post satisfactorily. Mr. Damle, a B.Sc. of the Bombay University, who desired to have some training in leather manufacture with the idea of starting a tannery of his own, was permitted to undergo a period of training with the tanning demonstration party at Dahiwadi. He is working at Dahiwadi since January 1937 and has been making very good progress.

103. **Technical advice and help to the trade.**—A number of people in the trade consulted the Tanning Expert regarding their work.

As a result of the advice of the Tanning Expert the following has been possible :—

(*i*) A finishing plant for skins meant for cap-linings has been set up at Dharavi. Quite high grade work that has not been done so far in the province is now being done and the finished product is of good quality and compares favourably with the imported article.

(*ii*) A tannery has started the manufacture of Chrome Sole leather as the methods suggested by the Tanning Expert made it possible for them to get a good yield. The same tannery has also started the manufacture of coloured belting, a thing that has not been done in the province before.

(*iii*) There is more finished leather and chrome leather being manufactured at the tanneries in Ahmednagar, and on the whole the output of finished leathers in the province has increased. The standard of quality in tanned sheep and goat skins has also improved. This branch of the work of the Department has been found useful and quite a few appreciative letters have been received acknowledging the value of the help that has been given.

104. **General assistance to the industry.**—Mr. Huseinbhai Velji of Ahmednagar approached the Department for support regarding his application for a licence for starting a tannery. The Tanning Expert during one of his tours visited the site in question, and the Department was able to recommend the application to the Municipality.

The Tanning Expert prepared a note in connection with the flaying of cattle in the slaughter-house. This note has been forwarded to the Municipal Commissioner, Bombay, for consideration.

105. **His Excellency's visit.**—His Excellency the Governor of Bombay was pleased to pay a visit to the Tanning Section and evinced great interest in the work done by the Section and in the samples of leathers that were on display.

106. **Expenditure.**—The expenditure incurred on account of this section during the year 1936-37 was Rs. 8,286-2-3.

CHAPTER VI

WORK OF THE DEPARTMENT FOR COTTAGE INDUSTRIES—(*Concld.*)

MARKETING OF HANDLOOM PRODUCTS

A—Cotton

107. **The Government of India Grant.**—The Marketing Scheme for Handloom Products was undertaken as a result of the Government of India deciding to make grants to all the provinces in India for the organisation of marketing facilities for handloom products. The grant made available to this Presidency was Rs. 39,500 a year. During 1936–37, the Government of India were able to increase the grants of all the provinces. The grant for that year for this Presidency and Sind was, therefore, Rs. 47,400, out of which Rs. 8,400 were transferred to Sind on account of its separation from 1st April 1936. The grant of the Bombay Presidency was, therefore, Rs. 39,000 for the year.

108. The Scheme comprises the organisation of District Industrial Co-operative Associations with the following aims and objects, namely :—

(*i*) to supply improved appliances on hire-purchase system or otherwise ;

(*ii*) to supply raw materials at reasonable rates ;

(*iii*) to advise weavers with regard to the production of improved and easily marketable patterns and designs ;

(*iv*) to undertake preparatory and finishing processes and dyeing and printing in connection with handloom industry ; and

(*v*) to accept, on consignment account against partial payment, handloom products from weavers and to purchase outright handloom products and to sell them.

To fulfil these aims and objects, each Association is to open a shop at its headquarters, the expenses of which amounting to about Rs. 3,400 per year are to be met from the grant until the shop is able to support itself. A provision of Rs. 2,000 per year is made for each Association to meet losses, if any, in its working on account of bad debts and depreciation.

109. A Marketing Officer (Handloom Products) and a Textile Designer have been appointed under the scheme. The Marketing Officer has to do the work of organising district industrial associations together with the shops under them and endeavour to increase the sales of the products of the handloom industry in the markets of Bombay City and elsewhere. The Textile Designer has to advise the various shops, weavers and weavers' societies in connection with improved and up-to-date marketable designs.

The Scheme is controlled by a Joint Board consisting of the Director of Industries and the Registrar, Co-operative Societies, Bombay Presidency, Poona.

110. Proposals were sanctioned by Government during the year to utilise the additional grant of Rs. 5,100 for 1936–37 made by the Government of India. The proposals provide for advertising the products of the Industrial Associations referred to above, meeting losses due to the manufacture of new samples and the payment of bonus to selling agents of the Associations according to the sales effected by them of the products of the Associations.

111. Since a saving has been made in the working of the scheme so far, it was decided during the year to utilise it in expanding the scheme by organising Co-operative Industrial Associations at Yeola and Malegaon in Nasik District and Bhiwandi in Thana District. These are very important hand-weaving centres of the Presidency and as the industry there is passing through critical times, those concerned made applications for help to this Department. The scheme under which these centres are to be helped provides that each of them should collect a share capital of Rs. 5,000 and open a shop at its headquarters to fulfil its aims and objects and that the Government will pay to each its recurring expenses for three years not exceeding Rs. 2,000 per year. It will be observed that while in the original scheme a recurring provision of Rs. 2,000 for each Association was made out of the grant, to meet its losses due to bad debts and depreciation, no such provision is made under the new scheme. It is expected that these Associations will be able to obtain the necessary working capital from Co-operative Banks on the security of their share capital.

112. **Organisation of District Industrial Associations.**—The Associations at Poona, Hubli and Ahmednagar which were organised last year continued to function during the year under review. The Association at Hyderabad (Sind) which was registered under the Co-operative Societies Act during 1935–36 was transferred to the control of the Government of Sind on account of its separation. The Northern Divisional Industrial Co-operative Association Limited, Ahmedabad, was newly organised during the year and it commenced working in November 1936. The work of organising the Associations at Yeola, Malegaon and Bhiwandi was taken in hand. In Yeola the necessary share capital has been collected and arrangements have been made for the registration of the Association under the Co-operative Societies Act. In Malegaon nearly half the capital has been collected and it is hoped that the remaining capital will be forthcoming in a short time. No progress could be made in regard to the organisation of the Association in Bhiwandi, and if it is found that it will not be possible to collect the required share capital in a month or so, some other centre will be given the benefit of the scheme.

113. **Review of the year's progress.**—The Associations at Poona, Ahmednagar and Hubli have now been in existence for well over a year and an idea of the results of the working of the scheme can be had from the following figures of membership, capital, turnover and gross profit of each Association :—

Name of the Association	Membership as on 31st March 1937	Share capital as on 31st March 1937	Advances from Government for capital as on 31st March 1937	Loan from Banks as on 31st March 1937
1	2	3	4	5
		Rs. a. p.	Rs. a. p.	Rs. a. p.
The Southern Central Divisional Weavers' and Industrial Co-operative Association Ltd., Poona ..	87	1,064 1 0	4,000 0 0	3,013 1 6
The North-Central Divisional Industrial Co-operative Association Ltd., Ahmednagar	515	984 4 0	4,000 0 0	8,833 10 1
The Industrial Co-operative Association Ltd., S. D., Hubli	184	950 8 0	4,000 0 0	2,000 0 0

Name of the Association	Sales during the year 1936-37			Gross profit
	Raw materials	Finished products	Total	
1	6	7	8	9
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
The Southern Central Divisional Weavers' and Industrial Co-operative Association Ltd., Poona ..	7,779 9 0	1,713 4 6	9,493 7 6	227 1 0 (Loss).
The North-Central Divisional Industrial Co-operative Association Ltd., Ahmednagar	26,772 8 1	22,823 13 0	49,596 5 1	2,240 12 3
The Industrial Co-operative Association Ltd., S. D., Hubli	14,530 0 6	3,979 9 9	18,509 10 3	489 14 8

Since the Ahmedabad Association was in its early stage of working, it is too early to comment upon it and the figures pertaining to it are, therefore, not given. This centre, however, is likely to develop into a big selling centre for handloom products. The great disparity between the sales of the Ahmednagar Association and those of the Hubli and the Poona Associations is due to the fact that the weavers in Ahmednagar are more progressive

and industrious than at the other two centres. All the weavers in Ahmednagar are using improved types of looms, viz. fly shuttle looms ; and even though they are not entirely free from the conservatism of their class, they are found to give a reasonable trial to new qualities and designs introduced by the Textile Designer of this Department. Regarding Poona it has been found that the conditions are unfavourable ; the question, therefore, of continuing the operations at Poona or transferring them to some other more suitable centre, is engaging the attention of the Joint Board.

114. A study of the figures of sales and gross profits given below for the first quarter of the year 1937–38 reveals the rapid progress made by the Hubli Association as well as the potentialities of the Ahmedabad centre.

Sales and gross profit for April, May and June 1937

Name of the Association	Sales			Gross profit
	Raw materials	Finished products	Total	
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
The Southern Central Divisional Weavers' and Industrial Co-operative Association Ltd., Poona ..	825 9 9	1,765 15 3	2,591 9 0	89 12 3 (Loss).
The North-Central Divisional Industrial Co-operative Association Ltd., Ahmednagar	2,231 8 9	4,449 3 9	6,680 12 6	523 13 9
The Industrial Co-operative Association Ltd., S. D., Hubli	6,068 0 6	3,741 9 0	9,809 9 6	779 3 3
The Northern Divisional Industrial Co-operative Association Ltd., Ahmedabad	1,469 4 9	1,419 7 3	2,888 12 0	137 10 9

115. **Benefits to weavers.**—All the above Associations commenced working by purchasing and stocking for sale, raw materials, improved appliances and handloom cloth, etc. The advantages which have been gained by the weavers are as follows :—

(*a*) In raw materials, the rates of the market are brought down as the Associations are selling them with nominal profit. This has been a help both to the members as well as non-members. Besides, since the Associations are stocking a variety of raw materials in different fast colours hitherto not available in those markets, it has been possible for weavers to take out new qualities of cloth without any difficulty. On account of an organised attempt by the Associations to dye fast colours, the rates of dyeing have been considerably reduced.

(*b*) As regards the sale of finished products, the Associations with the help of the Textile Designer of this Department undertook to manufacture entirely new qualities such as shirtings, coatings, patals, curtains, table cloths, towels, bedsheets, dhoties, etc. There is already an over-production in the usual products, and on account of the changing requirements of the public, it was found unprofitable to deal in such qualities. Production of new qualities mentioned above was, therefore, successfully introduced and it has opened to the industry a new and wide field. On account of this the glut in the market of the old and usual handloom qualities will be lessened. This will tend to improve the rates of old qualities also. This has actually been the experience of the Ahmednagar Association.

(*c*) The weavers can hardly earn Re. 0-4-0 a day as weaving wages in producing the usual qualities of cloth on account of over-production and consequent reduction in rates. In new qualities introduced by the Associations they can realise at least Re. 0-8-0 per day as weaving wages for eight hours working on fly shuttle looms.

(*d*) In manufacturing the new qualities every attempt is made to reduce the cost of production at every stage. Great care is taken to produce cloth strictly according to given specifications and to standardise the qualities.

(*e*) For selling the finished products of these Associations a system of appointing selling agents on a commission basis in all the important cloth distributing centres, is adopted. In this way, contact between the handloom weavers and the different cloth markets is established on account of which the weavers get acquainted with the changing requirements of the markets.

(*f*) The Textile Designer of this Department, who frequently visited the Associations to advise them with regard to the introduction of new designs and patterns, introduced about 60 designs of shirtings, 12 designs of coatings and 6 designs of lungis in Hubli, about 24 patterns of borders of patals in Ahmednagar, about 40 designs in curtain cloth and a few borders in sarees in Poona, and a marketable quality of towels and coating in Ahmedabad.

116. **Future of the District Industrial Associations.**—It should be mentioned that these Associations are working under difficult circumstances. They are handloom weavers' co-operative business organisations. Co-operative movement among weavers has been of very slow growth in the past owing to their conservatism and lack of assets. Added to this, is the fact that business in handloom products in general is passing through very critical times at present. With such an unfavourable background, any constructive programme is bound to progress very slowly. The present scheme aims at the organisation of a disorganised industry in all its aspects, on co-operative lines. Judging from the results

obtained, there is every chance for the Associations to become self-supporting, thus continuing to be of benefit to the hand weaving industry even after the Government of India grant is withdrawn in two years or so.

B—Woollen Industry

117. **The Government of India Grant and the Scheme Proposed.**—The Government of India were pleased to sanction in July 1936, a grant of Rs. 5 lakhs to be spread over a period of five years to help the cottage and small scale woollen industries in the various provinces. A scheme for the development of the cottage and small scale woollen industry of this Presidency was prepared by this Department for consideration by the Wool Committee at its meeting held at Lucknow in December 1936. This scheme was generally accepted by the Committee and subsequently by the Government of India, and a grant of Rs. 12,600 for 1936–37 and of Rs. 13,948 for 1937–38 was allocated to this Presidency to undertake that scheme.

118. The main features of the scheme approved by the Government of India are to arrange for finishing, to improve designs and patterns and to provide for marketing facilities. Its aims and objects are to supply improved appliances on hire-purchase system or otherwise, to supply raw materials at reasonable rates, to advise with regard to the production of marketable designs and patterns, to arrange for preparatory and finishing processes and to market the finished woollen handloom products. To fulfil these aims and objects, the following arrangements are to be made :—

(*a*) *Finishing.*—Arrangement for the finishing of woollen handloom cloth will be made with some Bombay mill. A recurring provision of Rs. 2,000 per year is made to partially meet any losses due to the inability of these products to bear the finishing expenses fully.

(*b*) *Improvement of Designs.*—This work will be entrusted to the Textile Designer of this Department appointed under the Marketing Scheme for cotton handloom products.

(*c*) *Marketing*—

(*i*) This work will be entrusted to the Industrial Co-operative Associations at Ahmednagar and Hubli organised under the Marketing Scheme for cotton handloom products under an agreement that they will take necessary steps to fulfil the aims and objects of the scheme. Each of them will be paid their additional recurring expenses incurred for this purpose not exceeding Rs. 2,360 per year and some commission on sales which will be realised out of the profits in the dealings. A provision of Rs. 10,000 made under this scheme to meet losses, if any, on account of bad debts and depreciation, will be divided equally

between the two Associations and paid to them to serve as a security for obtaining loans from co-operative banks for their working capital. Each Association will also be advanced an amount of Rs. 500 for selling improved appliances on hire-purchase system and Rs. 500 for taking out new samples.

(*ii*) A recurring provision of Rs. 1,000 per year is made to pay bonus to dealers who effect sales over a prescribed limit, in order to induce them to take special interest in the products taken out under this scheme.

(*d*) *Administration.*—A Wool Expert will be appointed to look after the working of this scheme.

The above scheme will be put into operation as soon as the final orders of Government are received.

CHAPTER VII

TECHNICAL AND INDUSTRIAL EDUCATION

119. During the year under review, the technical and industrial schools in the Presidency receiving grant-in-aid from Government numbered 24. Of these, 7 were maintained by public bodies and 17 by private bodies.

In addition to the foregoing, there were 21 other institutions not in receipt of any Government grant but recognised by the Department, and 10 recognised for examination purposes only and 1 Government institute directly under the administrative control of the Department. A complete list of these 56 institutions is given in Appendix A at the end of this Report.

THE COMMITTEE OF DIRECTION FOR TECHNICAL EDUCATION

120. The agency, namely, the Committee of Direction for Technical Education, through which the Department controls and keeps in touch with technical and industrial education in the Province, continued to function satisfactorily during the year under review. The personnel of the Committee during the year remained the same as in the previous year.

121. **Inspection.**—The inspection of technical schools was carried on as usual by the Teaching Inspector under the control of the Committee. It was, unfortunately, somewhat disorganised owing to his sudden demise in November 1936, as the post could not be filled up immediately for want of a suitable man. The Secretary of the Committee, Dr. Burley, however, visited some of the schools and inspected their methods of working, accounts, attendance registers and general management and gave general advice and directions where necessary.

122. **Instruction.**—The courses of instruction given in the technical and industrial schools continued to be as varied, practical and useful as in previous years. An up-to-date list of the courses recognised is given in Appendix B to this Report.

The utilitarian value of these courses of instruction will be realised from the fact that the boys, who satisfactorily complete their training, find little or no difficulty in obtaining suitable employment. One regrettable feature, however, is that many boys are tempted, due largely to poverty and economic necessity, to leave the institutions before completing their training.

123. **Examinations.**—As usual, the annual examinations for all the schools were conducted by the Committee ; 1,789 candidates took these examinations of whom about 80 per cent. satisfied the examiners. Of the 681 candidates who appeared at the final examinations 513 were successful and awarded certificates.

124. **Grant-in-aid.**—The amount of grant-in-aid disbursed to various technical and industrial schools during the year amounted to Rs. 37,892, details of which are shown in Appendix A. In addition, a *pro forma* grant-in-aid amounting to Rs. 1,642 to the Model Industrial Home and School, Kandivli, a grant-in-aid of Rs. 150 towards the cost of editing and publishing a text book on carpentry in Gujarati, and non-recurring equipment grants amounting to Rs. 1,100 were also made during the year.

125. **Recognition.**—During the year under review, the following institutions were granted recognition by the Department :—

(1) M. F. Engineer's Radio Class, Bombay.

(2) The Goan Emigrants' Funds Committee's Wiremen's Class, Bombay.

(3) Wiremen's Classes of the Success Electric Works, Ahmednagar.

(4) The Radio Class of Bombay Technical Institute, Bombay.

Two schools, namely the Church of Brethren Mission Industrial School, Palghar, and the Depressed Class Mission Industrial School, Bombay, which had been recognised and aided for several years past, having closed down, their recognition was withdrawn.

126. **Miscellaneous.**—The Department receives every year, as is to be expected, many enquiries and requests for information, advice and suggestions relating to technical and industrial education and cognate matters. The year under review was no exception and a number of such enquiries and requests was received and attended to, of which a few typical instances are cited below :—

(1) A high school in Dholka desiring to organise vocational classes was furnished with syllabii of suitable courses.

(2) A high school in Nasik desired to introduce vocational courses. Necessary advice was given.

(3) The Chairman, School Board, Ahmednagar, was furnished with detailed syllabii for courses in carpentry, handloom weaving and metal work.

127. **Expenditure.**—A grant of Rs. 14,493-12-0 was made by the Department to the Committee of Direction for Technical Education to meet its expenditure during the year under review as shown below :—

	Rs.	a.	p.
(1) Establishment charges ..	4,185	0	0
(2) Inspection charges ..	3,185	7	0
(3) Examination charges ..	7,123	5	0
	14,493	12	0

A sum of Rs. 2,313-12-11 was received as examination fees, etc., against Rs. 701-8-0 in the previous year and credited to Government.

THE VICTORIA JUBILEE TECHNICAL INSTITUTE, BOMBAY

128. It is no exaggeration to state that in the sphere of technical education in India this Institute occupies a unique and honoured place. Established as far back as 1887, the Institute is now in its 50th year of existence.

As in the previous year, technical instruction continued to be imparted in the following five courses :—

(1) Mechanical Engineering.

(2) Electrical Engineering.

(3) Textile Manufacture.

(4) Technical and Applied Chemistry.

(5) Sanitary Engineering and Plumbing.

During the year under review the Institute continued to be managed by a Board of Trustees of which the Director of Industries is the Chairman.

A large number of applications for admission from other provinces is received by the Institute testifying to its popularity and reputation throughout India. At the Entrance Examination for admission held in

June 1936, 276 candidates applied for admission; of these, 130 were admitted. Only 101, however, joined of whom 78 were from the Bombay Presidency.

The results of the final sessional examinations were satisfactory. 30 out of 40 passed in Mechanical Engineering, 29 out of 33 in Electrical Engineering, 24 out of 24 in Textile Manufacture and 12 out of 13 in Technical Chemistry and Sanitary Engineering Departments respectively.

One hundred and six students of the Institute appeared in the local examinations of the City and Guilds Institute of London during the year, of whom 39 were successful, one having secured a Silver Medal.

129. **Miscellaneous Courses.**—In addition to the regular courses described above, apprentice classes as usual were conducted once a week for instruction in Elementary Mechanical Engineering, Electrical Engineering and Cotton Spinning and Weaving; Electrical Wiremen's Classes I and II corresponding to the standard of the Government Examination were also conducted during the year. Bi-weekly evening classes were also held for the training of students in "Elementary Principles of Radio Communication, maintenance and repair of Radio Instruments". All these classes were well attended by a large number of apprentices engaged in different trades. These courses serve to provide technical instruction to a large number of people already employed in industry who would otherwise be unable to obtain such instruction.

130. **Expenditure.**—The total expenditure incurred by the Institute during the year was about Rs. 2,58,716 of which Rs. 1,25,000 were contributed by the Department of Industries as against Rs. 1,24,500 in the previous year.

THE RANCHHODLAL CHHOTALAL TECHNICAL INSTITUTE, AHMEDABAD

131. This Institute, which owes its existence to the munificence of the late Seth Madhavlal Ranchhodlal of Ahmedabad and now taken over by Government and managed and administratively controlled by the Department direct, maintains a standard which is intermediate between that of the Victoria Jubilee Technical Institute, Bombay, and the other technical schools in the Presidency. Courses of instruction in (1) Cotton Spinning, (2) Cotton Weaving, and (3) Mechanical Engineering, are provided each extending over a period of three years. During the year under review 107 applications as against 187 in the previous year were received for admission to the Institute. The total number of candidates admitted was 59 of which 15 were admitted to Cotton Spinning, 20 to Cotton Weaving and 24 to Mechanical Engineering Course. The total number of students on the roll on 31st March 1937 was 117 as against 144 in the previous year. A number of scholarships founded by the public and six Government scholarships of Rs. 10 per mensem were awarded to deserving students as usual.

In the annual examination held in April 1936, 137 appeared of which 116 passed. The percentage of passes was 84 as against 91 in the previous year. Of the 20 students who appeared at the various examinations held by the City and Guild Institute of London, 11 passed.

132. **Wiremen's Classes.**—During the year under review a new feature was added to the activities of the Institute. The Department realised that in an important industrial centre like Ahmedabad where the mill industry is progressing rapidly, there was a considerable demand for men trained in electric wiring work. A scheme for a Wiremen's Class in the Ranchhodlal Chhotalal Technical Institute, Ahmedabad, was accordingly submitted to Government in 1935–36 which received their sanction. Necessary recurring and non-recurring expenditure being provided in the year's budget, the Class was organised at the Institute in July 1936, for the purpose of training young men for II Class Certificates of Competency for Electric Wiremen issued by the Committee of Direction for Technical Education. The Class is held on two evenings a week for about 3 hours and the minimum qualification for admission required is a Certificate of V standard of an Anglo-Vernacular School and the minimum age for admission is 18. A small fee of Rs. 15 per term is charged. It is gratifying to note that the Class has become popular with the Ranchholal Chhotalal Technical Institute students as well as outsiders and has opened a new avenue for gainful employment for the educated middle class unemployed.

The popularity of the Institute can be gauged from the fact that though the minimum qualification for admission is Anglo-Vernacular Standard V, many Matriculates and First Year in Arts students are also seeking admission every year.

133. **Expenditure.**—The total expenditure incurred during the year was Rs. 36,064-13-6 and receipts were Rs. 3,729-5-6 as detailed below :—

Credit.

Particulars.	Amount. Rs. a. p.
(*i*) Sale Proceeds of articles.	168 3 6
(*ii*) Fees from students ..	3,489 13 0
(*iii*) Miscellaneous ..	71 5 0
	3,729 5 6

Debit.

Particulars.	Amount. Rs. a. p.
(*i*) Pay of Officers ..	6,610 12 0
(*ii*) Pay of establishment	18,234 5 0
(*iii*) Wages of workmen.	....
(*iv*) Allowances and Honoraria.	183 12 0
(*v*) Scholarships ..	1,063 0 0
(*vi*) Stores purchased ..	6,699 0 6
(*vii*) Other miscellaneous expenses.	3,274 0 0
	36,064 13 6

SCHOLARSHIPS

134. The Department of Industries awards each year a number of scholarships tenable at the Victoria Jubilee Technical Institute, Bombay, Ranchhodlal Chhotalal Technical Institute, Ahmedabad, Fardunji Sorabji Parekh Technical Institute, Surat, and Government Hand Weaving Institute, Poona. A number of scholarships is also given to the students of the peripatetic weaving schools in the Presidency reviewed in Chapter IV.

In addition, ordinarily three scholarships for research in Technical Chemistry and two for practical experience in Electrical Engineering are awarded each year.

135. **Government Special Scholarships tenable at the Victoria Jubilee Technical Institute, Bombay.**—These scholarships are intended only for the Intermediate and Backward Classes and Muhammadan candidates and are tenable for 4 years which the courses cover. The total number of scholarships available each year for award is 10.

During the year under review the Department received 23 applications of which 16 were from new entrants and 7 from old students of the Institute. Of the total applications received 12 were from Intermediate Hindus, 8 from Muhammadans and 1 from Backward Classes. Two applications from Advanced Communities were left out of consideration.

Intermediate Classes.—Three students in Electrical Engineering and two in Mechanical Engineering were awarded scholarships but one did not avail himself of the award.

Muhammadans.—Only one student from this group satisfied in all respects the rules for award and he was granted scholarship in Mechanical Engineering.

Backward Classes.—There was only one candidate in this group who was awarded a scholarship in Electrical Engineering.

As usual, scholarships falling vacant during the year were filled up by selecting suitable deserving students and awards in previous years continued on the basis of results of the annual examinations. There were 30 scholars in the different sessions of the Victoria Jubilee Technical Institute, Bombay, during the year under review.

136. **Scholarships in Technical Chemistry.**—The two scholarships awarded during 1935–36 for research work, both of which were tenable at the Royal Institute of Science, Bombay, were extended for one year more and two new ones were awarded during the year, one tenable at the Indian Institute of Science, Bangalore, and the other at the Royal Institute of Science, Bombay.

Researches and investigations carried out by the scholars under this scheme since its inception have covered a wide range of subjects. It is gratifying to note that these researches have served to stimulate interest in the development and exploitation of some of the resources of the Presidency.

137. **Scholarships in Electrical Engineering.**—The scholarship for practical training in Electrical Engineering awarded during 1935-36 was terminated as it was sanctioned for one year only. One new scholarship was awarded during the year under report and the scholar joined the Great Indian Peninsula Railway Works for necessary training.

138. **State Technical Scholarship tenable abroad.**—A special scholarship for Textile Manufacture tenable at the College of Technology, Manchester, awarded by the Government of Bombay in 1933-34 to Mr. Halkati was extended for a further period up to 31st July 1937. During the vacation, the High Commissioner for India arranged for six weeks' practical training for Mr. Halkati in a Mill in Holland. It is satisfactory to note, from intimation received from the High Commissioner recently, that Mr. Halkati has since passed the B.Sc. Tech. degree examination in 2nd Class. He applied through the High Commissioner for further extension to enable him to obtain additional practical training in approved works. His request has been granted subject to suitable facilities for practical training being available.

APPRENTICE SCHEME

139. Unemployment is a serious social and economic evil and has assumed to be, within recent years, a major social problem in practically every country in the world. In this Presidency in the absence of adequate facilities for vocational training many boys in secondary schools who might otherwise enter industrial occupations study for the Matriculation Examination, join the University, and then find at the end of an expensive course of studies that they are unable to obtain suitable employment.

With a view to mitigate this evil among the educated middle classes the Government of Bombay were pleased to sanction in December 1936 a Scheme of Apprenticeship prepared by the Department of Industries, to which a brief reference was made in the last year's Report. The Scheme has now been introduced in Bombay City and Ahmedabad, to start with. Essentially it is a voluntary indentured apprenticeship in industrial establishments on the basis of full-time employment extending over a period of 5 years, the apprentices being bound by the terms of the indenture to attend during the entire period the evening technical classes

organised by the Department at the Victoria Jubilee Technical Institute, Bombay, and the Ranchhodlal Chhotalal Technical Institute, Ahmedabad. The courses of training at present are limited to the following subjects, but will be added to according to needs and requirements :—(1) Mechanical Engineering, (2) Electrical Engineering, (3) Spinning, (4) Weaving, (5) Dyeing and Printing and (6) Typography.

The minimum academic qualification is completion of the 7th standard of the English High School course. The age at admission is limited to 16 to 20 years and all candidates must produce a certificate of physical fitness by a qualified physician and sit for a qualifying admission examination. The Advisory Committee for the Scheme consisting of representatives of the industries concerned makes the final selection after a personal interview of the candidates.

Seventy-six industrial establishments in Bombay City and Ahmedabad have voluntarily agreed to admit as apprentices 333 boys per year. They have also agreed to pay the apprentices wages at a rate of about Rs. 15 per month in the first year which will be increased later on according to the latter's ability. It is intended to limit the number of annual admissions to approximately what can readily be absorbed in the industries concerned after completion of the training.

The first qualifying examination was held on the 17th and 18th of May 1937 and the first batch of 333 boys was admitted to the various industrial establishments and evening classes with effect from 1st July 1937.

MISCELLANEOUS WORK

140. **(a) Requests for advice.**—As usual a number of requests was received from students for advice regarding facilities for training in technical institutions both in foreign countries and in India. In the former case the students were referred to the University Information Bureau. Necessary advice about technical courses in institutions in India was given by this Department.

(b) A comprehensive note on technical education in the Presidency.—The Government of India had under consideration the problem of reconstruction of the existing school system in such a way as not only to prepare pupils for professional and University courses but also to enable them at the completion of appropriate stages to be diverted to occupations or to separate vocational institutions. They felt that such advice could best be given by experts from a country with a more advanced educational system such as England where similar problem had already arisen and been overcome. With this object in view

two Experts—Messrs. A. Abbott and S. H. Wood—were invited by them to advise Government on specific points concerning the subject. The Provincial Governments were requested by the Government of India to collect the required data concerning general education as well as technical and industrial education in their respective provinces for the information and consideration of the Experts. As this Department controls technical and industrial education in the Bombay Presidency it prepared a comprehensive note describing the existing facilities for technical and industrial training, and giving a scheme for reorganisation of the system of prevocational manual training and technical and trade education in the Presidency. This note was submitted to the Government of Bombay for transmission to the Government of India for being placed before the Experts.

CHAPTER VIII

MINES AND MINERALS

141. As usual, the annual statistics pertaining to Mines and Minerals in the Presidency were collected by the Department from the various District Magistrates and the Agents to the Governor General and a consolidated return of the same was submitted to Government and the Director, Geological Survey of India.

During the year under report prospecting licenses were granted or renewed in 6 cases for mineral oils and natural gas, Bauxite, Chromite, Magnetic sands and Manganese ore.

This Department dealt with various enquiries received from the public in connection with minerals, places of their occurrence, firms dealing in them, etc. The number of enquiries dealt with during the year under report was 35 as against 38 in the last year.

142. **Tarkeshwar Limestone.**—In the last year's report it was mentioned that a well-known firm of Bombay interested in the manufacture of cement, on obtaining from this Department a report stating the extent of the limestone deposit at Tarkeshwar in the Surat District and the approximate proportion of various raw materials for the production of good quality cement, decided to put up a cement plant in that area. The site for the plant has already been selected and the work of erecting the plant is in progress. This will be the first cement factory in the Bombay Presidency. The factory will have the advantage of being very near to Bombay and Ahmedabad, the two important cement consuming centres in the Presidency.

143. **Sandstone and Felspar.**—It was mentioned in the last year's report that the samples of felspar and sandstone collected by the Industrial Chemist from the deposits located by him in certain parts had been sent to the Alipore Test House, Calcutta, where investigation was being carried out by the Industrial Research Bureau on this subject. The report based upon the test of these materials indicates that almost all the samples of felspar sent are suitable for ceramic industries and two of the samples of sandstone are suitable for glass industry. Steps are being taken to bring to the notice of the parties interested in the industry the different localities where these materials are available.

144. **Wolfram and Lead Ore.**—In connection with his duties, the Industrial Chemist had to visit a part of the Baria State Territory adjoining the Broach and Panch Mahals Districts, where he was able to locate a vein of high grade wolfram and a vein of lead ore within a few miles of the British area. It is just possible that the veins may continue in the British areas also as the same are within about a mile from one of the extremeties of wolfram vein. The matter has been brought to the notice of the Geological Survey of India and arrangements are being made by the latter to send one of their Geologists to investigate the veins further.

CHAPTER IX

FISHERIES

145. The Fisheries section was established about the middle of November 1933. The object of this section is to organise on a sound and systematic basis the fishing industry so as to augment the supply of fish, which is considerably less than the actual demand for it and thus to increase the Presidency's wealth from its fisheries and to improve the economic position of the fishing community.

146. The city of Bombay is by far the biggest single consuming centre in the Presidency and it is well known that the supply of fish is only about a third of the potential demand. The first step therefore taken in 1933 was to arrange to increase the city's fish supply. For this purpose, it was decided to popularise among the fishermen the use of power-propelled boats, as in Japan, the idea being to bring home to them the numerous advantages that would accrue to them from the introduction of fast motor launches for the transport of fish from the sites where they are caught to the consuming centres.

147. The scope of the Fisheries Section has, since its inception in 1933, been considerably widened. At present it (*a*) popularises the use of power-propelled launches among fishermen, (*b*) controls 31 fish curing yards in the Presidency, (*c*) is taking steps for the development of fresh water fisheries, (*d*) compiles fisheries statistics, supplies information

about same to the public and renders general assistance to the fisheries industry and trade. Items (*b*) and (*c*) of the work were undertaken for the first time during the year under report.

Marine Fisheries

INTRODUCTION OF POWER-PROPELLED LAUNCHES

148. **Departmental Launches.**—The number of launches owned by the department was the same as in the previous year, namely three. No new launches were built during the year. It was thought desirable to recover a good proportion of the outstanding dues in respect of the three launches built in the previous year and disposed of to the fishermen on the instalment basis before more launches were built. Moreover, the extension of the sphere of operation of the launches to Karwar made it advisable to collect data regarding the efficiency of the present engines and their capacity to withstand the strenuous wear and tear of frequent journeys.

149. **Benefits of Motor Boats.**—The launches performed voyages as far down as Bhatkal, the southernmost point of the Bombay Presidency and to Diu in the north. Two of the three launches, namely the " Lady Sykes " and the " Lady Brabourne ", worked satisfactorily. The third launch, the " Sir Frederick Sykes ", made only a few trips as it was frequently laid up owing to engine trouble. The performance of the launches was on the whole most creditable despite the distant trips they had to make, for when the launches were originally built, it was never expected that they would travel such long distances but would merely operate within a radius of about 30 miles. The total number of launches in use during the year rose to five, three belonging to Government now bought by the fishermen on the instalment basis and two privately owned.

Further evidence of the utility of launches to transport fish was furnished by the conversion of a small trawler " Cymbria " into a fish carrier. This vessel was originally brought out by one Mr. Schulze in 1930 for deep sea fishing around Bombay. The trawler was bought second hand and required repairs. Owing to financial difficulties the trawler lay idle for some time and was reconditioned and repaired during the year for use as a fish carrier since when she has made regular trips to Karwar for the transport of fish to Bombay. The conversion of the trawler into a fish carrier brings the number of power propelled vessels to six.

The operation of the launches has proved that Bombay's fish supply is still far from adequate. The steadily increasing amount of fish transported by the vessels has been immediately absorbed on arrival and there has been no wastage. It is felt that a much larger quantity of fish could easily be disposed of in Bombay than that brought at present.

It may be stated here that the fishing season during the period under review was unusually slack. The weather was very unfavourable and a gale was experienced in November which lasted for several days and marked the end of the mackerel season. The fishermen all along the coast complained that they had not witnessed such conditions for a number of years. There was nevertheless no dearth of fish at the fishing fields but a noteworthy feature of the year under review, according to the fishermen, was that the fish never came close in shore as is normally the case.

Despite the unfavourable weather the quantity of fish landed by the three launches of the department was larger than that in the previous year, amounting to 4,04,679 lbs. as against 2,39,446 lbs. in 1935–36, the value of the catch being Rs. 35,663. Over three-fourths of the total quantity of fish landed was brought from Majali and Chendia ports beyond Karwar in the Kanara district, which are at a distance of about 270 miles from Bombay.

Evidence of the benefit conferred by the launches on fishermen in Karwar is furnished by the honorary organiser of Co-operative Societies at Majali. He states in a letter addressed to this office that the visits of the launches to places in Karwar were eagerly looked forward to by the fishermen, who were grateful to Government for the introduction of the launches. During the year under review the fishermen at Majali and Chendia obtained better prices for their fish, for whereas formerly they sold mackerel at about Rs. 1–8–0 to Rs. 2–0–0 per thousand, they realised from the launches Rs. 5 to Rs. 8 per thousand. The fishermen were reported to have taken a keener interest than previously in the pursuit of their trade, and they felt that a period of prosperity had set in for them. As evidence of this, the honorary organiser has reported that the fishermen paid in full to the Co-operative Society of which they were members, the dues which had been outstanding for the past four years.

The practical demonstration afforded by this department in bringing fish from distant fishing sites also resulted in two private firms engaging in the business and bringing to the City between them about 2,43,250 lbs. of fish, of this quantity 56,250 lbs. were frozen at Malwan and brought to Bombay by the Bombay Steam Navigation Company's steamers and 1,87,000 lbs. were brought by Motor launches mainly from the Kanara coast. A total quantity of over 590,000 lbs. of fish worth over Rs. 50,000 was brought to Bombay by five Government and private vessels ; this does not include the 56,250 lbs. of frozen fish brought by steamer. The statistics of the quantity and types of the fish brought by the launches of this department are set forth in Appendix C. Other edible varieties of fish—not mentioned in the aforesaid appendix—were also available, but were not brought to Bombay as the fish eating public usually buys regular varieties to which they are accustomed. On one trip the launch " Lady Brabourne "

brought about a ton of fish known as " Kokeri " or " Nalba " which is quite a good edible variety of fish, but had to be distributed gratis to the local fishermen as there was no ready sale for it. This points to the imperative need of conducting propaganda setting forth the food and nutritive value of fishes which do not usually find their way to the markets.

150. **Need for Modern Fishing Methods.**—The introduction of the launches has thus served Government's original intention to increase the supply of fish in the city of Bombay. In this connection it may be stated that during the last two brief fishing seasons, each lasting for about five months, the three launches of the department brought from the distant fishing sites 6,44,125 lbs. of fish. The fishermen have also greatly benefitted from the use of launches as they realised better prices. The success that has attended the scheme has filled them with new hope about the future prospect of their trade.

Experience has shown, however, that the use of launches merely for the transport of fish cannot by itself augment the supply of fish. It is felt that the maximum benefit from the launches can only be derived by their use not only as carriers but also for the purpose of catching fish. The time is now ripe to extend the use to which the launches are at present put by also employing them to catch fish. The launches are now busy for about only four months of the fishing season when shoals of fish approach the coast and are caught in large quantities. During other months the launches are temporarily idle, which is due to the fact that when the fish do not approach close enough to the coast the fishermen do not venture out far at sea owing to their crude equipments. The present methods of the fishermen are quite effective for small scale operations only, but are extremely unsuited to tap the rich harvest of the sea. It is, therefore, clear that if the utmost advantage is to be derived from the operation of the launches, the methods now in use must be improved and made more effective. It would be necessary for this purpose to engage the services of a master fisherman familiar with the methods of using launches to catch fish. His main duty will be to test the suitability of all modern methods of fishing in Indian waters with a view to their employment in catching such valuable shoaling fish as mackerel, sardines, pomfrets, etc., and then, in the light of the experience gained, to train the fishermen in their use.

151. **Ice Factories.**—The stimulus to commercial enterprise as the result of the operation of the launches is borne out by the establishment of an ice factory at Chendia, a port in the Karwar district. The factory has been set up mainly to cater for the needs of the launches, which will thus, to some extent, be relieved from the necessity of carrying such large quantities from Bombay as before or being compelled to return to Malwan or Bombay for ice when it melted. The establishment of the ice factory at Chendia brings the number of ice factories on the coast

to two, one having already been started at Malwan, a port in the Ratnagiri district.

The year also witnessed the establishment of a *dry* ice factory in Bombay, bringing the number of such factories to two. These factories are making special efforts to meet the needs of the fishing industry.

152. **Fish landing site.**—The past year witnessed several improvements carried out by the Bombay Port Trust at the Sassoon Dock, where previously the fishermen used to experience considerable difficulty in landing their catch. The foremost trouble they had to contend with was the shallowness of the basin due to constant and heavy siltage. The Port Trust accordingly, in response to the request by this department had the basin dredged, its depth being thereby increased by three feet. This improvement has been welcomed by the fishermen, specially the launch-owners, as it enables the vessels to enter the basin at any state of the tide. Another facility afforded by the Port Trust is the provision of a flight of steps on the north side of the basin exclusively for the use of the fishermen.

153. **Training of Apprentices.**—The scheme for the training of fishermen in the handling of launches was continued during the year. The number of apprentices so far trained since the inception of the Fisheries scheme in 1933 is ten. Two of the apprentices left after a period of apprenticeship of 10 months on account of ill-health. One of the apprentices has successfully qualified for the mechanic driver's examination and has obtained the necessary certificate from the Mercantile Marine Department. This apprentice did not, however, elect to remain with the department and has gone elsewhere. Of the four apprentices who have completed their requisite course of training one has been in charge of the launch " Lady Sykes " as mechanic driver. He has been on this launch for the past two years and his work has given every satisfaction. Two of these apprentices have been appointed as boatmen. The fourth apprentice completed his training only on 31st March 1937. All the four apprentices are now due to appear for the qualifying examination referred to above. The remaining apprentices are still under training.

Fish Curing Yards

154. The control of the fish curing yards was transferred from the Salt Department, Government of India, to the Department of Industries on July 1, 1936, in accordance with Government Resolution, Revenue Department, No. 949/33, dated April 21, 1936. This transfer was effected in order that the technical advice and guidance of the Fisheries Officer and the Fisheries Inspector might be available for the benefit of the fish curers, as well as that there might be unified control over the entire fishing industry of the Bombay Presidency. An Inspector of Fisheries, with head-quarters at Malwan, a port on the Ratnagiri coast, was appointed on July 1, 1936,

to assist fishermen, and fish curers specially, by advising them on new methods relating to their trade. He was at first attached to the head office in order to familiarise him with the office routine. He left for Malwan to take charge of his appointment on September 9, after the resumption of the steamer service between Bombay and the coastal ports. The yards had been transferred to the control of this department on July 1, 1936, and in the intervening period, until the Inspector took charge of his duties, the Collector of Salt Revenue and his staff kindly continued to supervise the administration of the yards.

155. **Number of yards.**—The number of fish curing yards at which business was transacted during the year under review was 31, as compared with 34 in the previous year. Three yards, namely those at Surjekot, Tadri and Baitkhol were closed down. This step was taken as the sales of salt at the aforesaid yards had shown a progressive decline for several years previously. The issue of salt there was not at all commensurate with the cost of their upkeep.

156. **Fish cured at the yards.**—The principal kinds of fish cured at the yards consisted of mackerel, ghol, mushi, towar, surmai, shengala, wagali, saranga, khavli. The fishing season started much earlier than usual. Shoals of ghol and cat-fish were the first to appear on the coast and heavy catches were made, fish curers reaping a rich harvest. Colombo is at present the only market for cured cat-fish and ghol, large consignments of which are sent there. Such great quantities of these fishes were landed in the Kanara district that their rates slumped to an abnormally low level, with the result that fishermen discontinued catching these, although they were available in abundance. The entire coast from Boria to Bhatkal was next visited by shoals of " Karli " and " Iswan "; and " Surmai ", " Sardines ", " Pedwa ", " Mushi ", " Dogol " etc. were the next to appear. Catches of sardines were converted by fish curers into fish manure, which fetched about Rs. 10 per 20 maunds. The shoals of sardines made their appearance on our coast last year after a number of years. The catches of this fish did not, however, in any way affect the sales of salt as this fish is not generally brought to the yards.

The mackerel season was of an exceptionally brief duration. It started late in October and unexpectedly terminated in February owing to unfavourable weather conditions. Very small catches of mackerel were made in the vicinity of Malwan and Vengurla, which are otherwise, noted for the dense catches of this fish. Majali, Chendia and Harwada yards did well, as large quantities of mackerel were brought there to be cured.

It may incidentally be stated that the department's launches and private launches brought their catch of mackerel mainly from the fishing sites off Majali and Chendia bunders. The six most important fish brought to the yards during the year were Shenghala, Iswan, Mackerels, Surmai, Ghol and Mushi in order of their importance.

157. **Transactions.**—(*a*) During the nine months ended on March 31, 1937 a total quantity of 61,236 maunds and 20 seers of salt was issued for curing purposes, 35,635 maunds being issued for work in the yards in the Ratnagiri District and 25,601 maunds and 20 seers in the yards in the Kanara District. The salt for the former was indented from Uran and for the latter from Sanikatta. The supply of Sanikatta salt to the Kanara yards was a change from the usual practice and it was made in response to the requests from fish curers in the Kanara District, who adopting the wet process of curing fish, prefer this salt. The fishermen appreciated the grant of this facility.

(*b*) Some fishermen of Boria, Jaigad, Ratnagiri and Manki availed themselves of the concession of taking non-duty paid salt from the fish curing yards to preserve their catch at sea. The quantity of salt issued for the purpose was 675 maunds. This quantity is included in the figures shown in sub-paragraph (*a*) above.

The decrease in the quantity of salt issued this year for curing work at sea is ascribable to the fact that the fishermen had to obtain permits from the Sarkarkun on the very day they were putting out to sea. This was not possible for obvious reasons such as the state of the tide, the Sarkarkun's office being situated at some distance from the yards and being closed early in the morning when the fishermen wanted to leave etc. The fish curers represented their difficulties to this department, which approached the Collector of Salt Revenue and obtained his permission to the grant of a permit for the issue of salt a day previous so that the fishermen could take advantage of the tide the next day and leave port early.

(*c*) 841 maunds of salt were issued free of duty from the fish curing yards for use for manurial purposes. The issue price of denatured salt for manurial purposes remained unchanged, namely 8 annas per maund.

(*d*) The total quantity of fish brought to the yards during the nine months was 2,21,682 maunds.

158. **Opening of new yards.**—(*a*) *Yard at Palshet.*—A representation was received from the fishermen at Palshet, a port on the Ratnagiri coast, requesting the establishment of a fish curing yard there. Palshet is five miles from Boria, where a fish curing yard already exists. The application is under the consideration of this department.

(*b*) *Yard at Baitkhol.*—There was some agitation for the reopening of the Baitkhol yard which had been closed down by this department owing to the unsatisfactory turnover consequent on the stoppage of the wet process of curing fish, by the Collector of Salt Revenue under his order No. 102-2, dated April 21, 1925. A proposal to reopen this yard is under the consideration of this department.

159. **Offences.**—A case of misappropriation of Government money by a nine-monthly officer attached to the Purnagad fish curing yard was investigated by the Fisheries Inspector, and the yard officer who was found to be at fault was dismissed. He made good, however, the amount of Rs. 82-8-0 with the embezzlement of which he had been charged.

160. **Upkeep of Fish Curing Yard buildings.**—The fish curing yard buildings indicated with asterisks in Appendix E were transferred under the charge of Public Works Department in their respective divisions owing to their proximity to Divisional Public Works Department head quarters, under Government Resolution, Revenue Department, No. 5926/33, dated February 19, 1937. Buildings at other yards, being not easily accessible to the Public Works Department were directed by Government in the same Resolution to be maintained departmentally.

161. **Quarters for staff.**—All yards are not provided with quarters for the staff. This has to some extent interfered with the efficient work at the yards, for it is essential that the staff must be on the spot, as far as possible, almost throughout the day. Government were accordingly pleased to sanction rent allowance to the staff where quarters did not exist on the premises of the fish curing yards. Despite this facility, it was not possible to obtain quarters in the immediate vicinity of some of the yards and this department had to resort to the expediency of erecting temporary structures to accommodate the staff so that it might be possible for them to attend to the work more expeditiously.

The question of the provision of quarters for the staff is one of urgent importance, and the department will have to direct its attention to this problem as early as possible so that the work of the yards does not suffer in consequence.

162. **Inspection.**—The Fisheries Inspector was out on tour of the yards for 136 out of 203 working days. During his tours he impressed on the fishermen the need for curing their product under sanitary and hygienic conditions.

163. **Yard finances.**—Appendix D gives a *pro forma* account of the transactions at the various fish curing yards during the nine months from July 1 to March 31, Appendix E containing a detailed account of the transactions. It may be stated that the yards were transferred to the control of this department on July 1, 1936, and that the Salt Department, Government of India, had charge of them for the first three months of the financial year, namely April, May, and June, the statistics for which period have therefore not been included in the report.

The estimates pertaining to the administration of the fish curing yards for the nine months had reckoned on a possible sale of 68,000 maunds of salt, but the quantity actually issued was 61,236 maunds, which was due to the failure of the mackerel season.

The issue price of salt for curing fish remained unchanged during the year, viz. Re. 1 per maund.

The net profit from the working of the yards during the period under review was Rs. 7,945. This surplus was not, however, obtained exclusively from the sale of salt but was also due in a large measure to the curtailment of expenditure under various heads and specially to reduced expenses on petty constructions and repairs to yard buildings.

164. This section of the report would not be complete without placing on record the valuable assistance and ready co-operation rendered to this department by the Collector of Salt Revenue whose advice and help which were readily forthcoming were greatly appreciated by this department.

Fresh water fisheries

165. In the year 1934 a scheme in connection with the development of Inland Fisheries in the Bombay Presidency was prepared and submitted to Government. The scheme was not sanctioned on account of financial stringency. The department, however, continued the preliminary work and again approached Government to sanction an expenditure of Rs. 1,500 to conduct an experiment at the Bandra Tank which was placed at the disposal of this department by the Bandra Municipality. The department's scheme in connection with the Bandra Tank was approved. Later, Government were pleased to place at the disposal of this department a sum of Rs. 10,000 for the development of Inland Fisheries in this Presidency from the Government of India rural uplift grant. A fresh scheme spread over a period of four years comprising of (1) a preliminary survey of sheets of fresh water in the Presidency; (2) fish fattening in tanks and wells and (3) fish culture, was submitted to Government who approved it in January 1936. The work in this connection was begun from March 1936 when the Piscicultural Assistant was appointed. The Government of India, however, expressed their inability to continue to finance the scheme from April 1, 1937. As the work done so far was very encouraging Government were approached for the continuance of the scheme as an ordinary activity of the department for three years more from April 1, 1937 to which Government were pleased to agree.

166. **Survey work.**—(*a*) A preliminary survey was carried out by the Piscicultural Assistant with a view to finding out suitable sheets of water and studying the possibility of obtaining fingerlings of catla and other suitable edible species for stocking and fattening in various tanks and wells.

As it was not possible, with the limited staff at the disposal of this department to undertake a survey of various sheets of water in the Bombay Presidency, a questionnaire was issued by this department to the Collectors, Chairmen of all Municipalities and to the Irrigation department with a view to obtaining information about inland fisheries with particular bearing on the extent of the sheets of water; whether they are rivers, tanks, canals or ponds; the area and the extent of water; how far they are constant, how far variable and how far suitable for stocking purposes; and whether they already contain fish, its quality and quantity. The replies indicate the presence in various parts of the Presidency of large and suitable stretches of water where inland fisheries may be profitably introduced and developed.

(*b*) An important object of the preliminary survey conducted by the Piscicultural Assistant was to see if it was practicable to make this Presidency independent of the supply of fingerlings of rapid growing fish such as catla from outside sources. Catla is one of the most important rapid growing types of fresh water fish. It is being inexpensively cultivated on a most paying basis in Madras, Bengal and Patna. This is evident from the considerable revenue derived from the sale of its fingerlings, by the Bihar and Madras Governments, to private individuals for stocking purposes.

The Madras Fisheries Department obtain its supply of catla fingerlings from the lower reaches of the Kistna and Godavari rivers flowing through the Madras Presidency. The Piscicultural Assistant in order to discover a source of supply of this valuable carp in the Bombay Presidency surveyed the upper reaches of the Godavari river but his investigations were fruitless as no catla occurs here.

A collection of the numerous varieties of fresh water fish to be found in the Poona district was made by the Piscicultural Assistant. The material collected was sent on to Dr. S. L. Hora, an expert on fisheries matters, who is attached to the Zoological Survey of India. Dr. Hora identified the various fish and will embody the results of his observations in a monograph he is at present compiling.

A survey of the waters of the Moola Mutha river in Poona carried out by the Fisheries Officer and the Piscicultural Assistant revealed that fingerlings of murrel are available there in very large quantities. They could be collected very cheaply and distributed for stocking purposes in various parts of the Presidency.

167. **Fish fattening and culture.**—Fish fattening work was commenced about the beginning of the last monsoon in a pond off the Ghodbunder Road at Bandra. The sphere of work has now gradually been extended and two tanks belonging to the Bandra Municipality, three wells and one tank owned by private individuals in the suburbs of Bombay and a tank and a well at Uttan (N. Salsette) have been stocked with fish. Apart

from these, three ponds and a well at the Ganeshkhind Fruit Experimental station and five other wells at Poona have also been stocked. The aforesaid sheets of water have been stocked with approximately 14,000 fry of catla, gourami and etroplus, consignments of which were specially imported for the purpose from Patna and Madras. These fish are not indigenous to the Bombay Presidency.

" Catla " fingerlings introduced in the Bandra pond during the middle of 1936 measured about 2½" and when caught on March 2 and May 21, 1937, showed that they had grown to 14" and 20" in length and 12" and 15½" in girth. On an average each " catla " weighed 4 lbs. 4 ozs. on May 21, 1937. The " catla " fingerlings have so far not been found in the fresh waters of our Presidency and had to be imported from Madras expressly for the purpose of the experiment. It is expected that the " catla " may breed in the large pond at Bandra into which a number of fingerlings have been introduced.

Fingerlings of etroplus were also introduced in wells and in ponds at the same time as catla and jatari. Specimens of etroplus removed from the well and from the pond on March 2, showed that those in the pond had grown at a faster rate than those in wells. It must be admitted that the etroplus is noted as a slow grower.

Owing to the high cost of importing catla, gourami and etroplus and the difficulties of transport, attempts were made to discover suitable fingerlings in local waters which would thrive in fresh water ponds.

Creeks and estuaries round about Bombay were surveyed and fingerlings of Mugil-cephalus (mullets) and lates-calcarifer (jatari) were collected and introduced into sheets of fresh water. 120 fingerlings of lates-calcarifer were collected from a creek near Rai and Bhyandar and were introduced into a small pond at Bandra, covering an area of about 2,500 square yards. The pond was dragged on March 2, and May 21, 1937, when 85 and 8 specimens of the jatari were caught respectively. Examination showed that there had been a remarkable growth in their size, for whereas when introduced the fingerlings measured about 2", they had during the said period increased to 12" and 15¾" in length and 8" and 10½" in girth respectively. On an average each specimen weighed 1lb. 12 ozs. on May 21, 1937. The cost of 120 fingerlings including transport amounted to Rs. 4. When 85 specimens were sold in March they fetched Rs. 15 yielding a clear profit of Rs. 11. The results might have been even more striking had the fish been allowed to remain in the pond some time longer. It is proposed in the current year to stock the aforesaid pond with about 2,000 fingerlings.

The results obtained so far are encouraging as they show that a variety of fish suitable for introduction in ponds is available locally. The fish could be introduced without much cost to remote places in the interior

where fish is not readily available. The fingerlings of the fish are available during the monsoon at a very nominal cost.

Experiments are at present being conducted to " condition " the fish Lates-calcarifer in order to study its capabilities to withstand transport. " Lates " is a typical estaurine species and grows to a large size ; specimens weighing 20 to 30 lbs. are frequently to be seen in the market ; but the fish is known to grow to a much larger size in the open sea. " Lates " is a good edible fish and is the same as the fish known as " bhekti " which is a very popular in Calcutta.

The results so far achieved by this department in connection with fresh water fisheries show that there is a good prospect that the section of inland fisheries can be made self-supporting after a few years. There is quite a number of fresh water sheets all over the Presidency which do not yield revenue at present. These can be exploited on a paying basis if they are judiciously stocked.

168. **Help to Bombay Presidency Angling Association.**—The department afforded help to the Bombay Presidency Angling Association in obtaining for them a consignment of 10,000 fry of catla, calbasu, mrigal and rohu. This consignment was specially brought down from Patna to stock the Powai lake. The expenditure in connection with the experiment was borne by the Bombay Presidency Angling Association. The introduction of this fish in the Powai lake will serve a dual purpose for, apart from their usefulness as a sporting fish there will eventually be within easy reach of Bombay a source of supply of fingerlings for stocking purposes. Further, this department collected locally for the Bombay Presidency Angling Association 2,000 fingerlings of magalops. These also will be liberated into the Powai lake. Magalops is a marine sporting fish, fingerlings of which are to be found plentifully during the monsoon. Though an estuarine fish it becomes acclimatized to fresh water and thrives in tanks.

Fisheries Information Bureau

169. A large number of inquiries seeking information on various subjects were received and dealt with by the Fisheries Section. Some of these inquiries related to the use of motor launches as fish carriers. Fullest information on the subject was given.

The extension of the work of the bureau is greatly hampered by the inadequacy of its present staff. There is only one clerk who, apart from attending to general inquiries, has also to devote a considerable portion of his time to other miscellaneous work, such as Inland Fisheries, launches, etc.

The result of this is that it is not possible to systematize and classify information obtained from various sources by this Department.

CHAPTER X

WEIGHTS AND MEASURES SECTION

170. As was mentioned in the last year's report, the Bombay Weights and Measures Act, 1932 was enforced from 1st August 1935 in the City of Bombay and ten districts and from 1st March 1936 in the remaining districts. It remained in force in the whole of the Presidency during the year under report.

STAFF

171. Last year the administrative and supervising staff of the Weights and Measures Section at Bombay consisted of the Warden and one Assistant Warden of Weights and Measures. During the year under report the staff was strengthened by the appointment of another Assistant Warden.

The inspecting staff in Bombay City which consisted of two Inspectors last year was augmented by two more inspectors on account of the considerable increase in the work of verification and stamping of weights, measures etc. of industrial establishments, Railways and Government Departments. The Inspecting staff for the districts remained the same numbering 39 inspectors at the rate of two inspectors per district, one for the head-quarter town of the district and the other for the rest of the district. The inspectors took charge of their duties in their districts after necessary training in the nature of their work under actual working conditions in Bombay. Each inspector has under him one manual assistant and one peon.

The clerical staff which consisted of five clerks at the end of last year was increased to eight during the year to cope with the considerable increase in the clerical work of the section.

EQUIPMENT AND LABORATORIES

172. (*a*) *Districts*—Traders' Weights and Measures Laboratories have been set up in each of the districts as reported last year. These are equipped with working standard weights and measures and accurate weighing instruments. The inspectors use this equipment to verify and stamp the wholesale and retail traders' weights and measures once in two years. The weights and measures kept in industrial establishments coming under the Indian Factories Act are verified and stamped once every year. In each district a set of secondary standards is also maintained. The inspectors use these to verify the working standards in their possession once in every six months. The work in all the district laboratories was carried out satisfactorily during the year.

(*b*) *Bombay City.*—The Traders' Weights and Measures Laboratory which was set up in the basement of the Development Department Building, Bombay for the verification of weights and measures submitted by the manufacturers of and dealers in weights and measures, continued to work at full pressure during the year.

The Standards Laboratory which was set up on the ground floor of the above mentioned building for the work of verification of working standards in use by the Municipal and Government Inspectors in Bombay City and secondary standards kept in the districts also worked satisfactorily during the year.

Manner of enforcement of the Act

173. **Co-operation of Local Bodies.**—As reported last year the Act was enforced in various districts with the co-operation of the various municipalities and district local boards. The following local bodies co-operated with Government to work the Act during the year:—(1) Bombay Municipal Corporation, (2) Ahmedabad Municipality and District Local Board, (3) Broach District Local Board, (4) Surat Municipality and District Local Board, (5) Thana Municipality and District Local Board, (6) Ahmednagar District Local Board, (7) West Khandesh District Local Board, (8) Nasik District Local Board, (9) Poona Municipality and District Local Board, (10) Satara District Local Board, (11) Sholapur Municipality and District Local Board, (12) Belgaum Municipality and District Local Board, (13) Bijapur District Local Board, (14) Hubli, Dharwar and Gadag Municipalities, (15) Dharwar District Local Board, (16) Ratnagiri District Local Board. The smaller municipalities in the districts have either combined with the head quarter town Municipality or district local board.

In order to ensure uniformity in the administration of the Act Government laid down Model Regulations prescribing the powers and duties of local body inspectors, under Government Resolution, General Department, No. 9518 dated 15th July 1936 which were adopted during the year by most of the local bodies.

The procedure for the enforcement of the Act by local bodies has been laid down in the note under Government Resolution, General Department, No. 9518 dated 20th December 1934. In most districts the head-quarter municipality has appointed one inspector and the district local board has appointed another. A part of the district headquarter town municipal area is allotted to the Municipal Inspector and a part to the Government Inspector. Similarly the area under a district local board is divided between the district local board inspector and the Government Inspector for the district. The stamping work in the entire area and verification

and stamping of weights and measures etc. of large industrial establishments, manufacturers of and dealers in weights and measures, Railways and Government establishments are reserved to the Government Inspectors. In the districts where the local bodies concerned have not appointed their inspecting staff, Government have decided to enforce the Act entirely through the agency of their own inspectors and the entire work in such areas is done by Government Inspectors.

In Bombay City the arrangements are different from those in the districts. Here the whole Municipal area is in charge of the Municipal inspectors. They do both verification and stamping of all the weights and measures and scales except those belonging to large industrial establishments, manufacturers of and dealers in weights and measures, Railways, Port Trust and Government establishments. The latter work is undertaken by Government inspectors. The Bombay Municipality has four inspecting units and their laboratories are located in four different business localities of the City.

The arrangements outlined above worked smoothly. The Government and the local body inspectors worked together harmoniously and the work of verification and stamping was carried out satisfactorily in all the parts of the Presidency.

Prosecutions

174. During the year under report the inspectors of weights and measures in the districts and Bombay City put up a number of cases for prosecuting the traders for the use of unauthorized weights and measures. Great care was, however, taken to sanction prosecutions only in the case of those offenders who had been repeatedly warned but who continued to ignore the law. Twenty-four such cases were sanctioned out of which convictions were secured in eight cases. The rest remained pending for trial in the courts. In Bombay City a case of forgery of Government stamps was detected and the offender was prosecuted successfully before the Chief Presidency Magistrate who found him guilty and imposed a heavy fine.

Amendment of the Act and the Rules

175. It was mentioned in the last year's report that certain sections of the Act were amended in order to empower Government to recognise new and additional denominations of weights and measures for various trades. After the Act was duly amended suggestions were invited from the various associations and traders for the recognition of weights and

measures used by them in their trades which were not hitherto recognised under the Act. These suggestions were incorporated in the two draft notifications published by Government in the *Bombay Government Gazette* in October last for the purposes of inviting observations and objections of the public thereon. After careful consideration of the representations received from the public, the two draft notifications in question, were revised and finally published in the *Bombay Government Gazette* on 18th March 1937.

The recognition of the new and additional denominations of weights and measures has necessitated the framing of new rules and tolerances for them. Proposals will be submitted to Government very shortly to amend certain rules and add new ones prescribing specifications and tolerances for the new weights and measures.

The extent to which the Act has been enforced

176. From the time of enforcement of the Act namely 1st August 1935 to 31st March 1937 over 18,58,600 units of weights, measures and scales were verified and stamped. From this figure it will be obvious that the Act has been effectively enforced all over the Presidency.

General

177. **His Excellency's visit.**—During the year under report His Excellency the Governor of Bombay honoured the Department by paying a visit to its weights and measures laboratories. His Excellency showed keen interest in the methods of testing weights and measures and the working of various instruments.

178. A number of enquiries from the various Provincial Governments and Indian States about the system of weights and measures adopted and the working of the Act in this Presidency was received and dealt with.

At the instance of Director of Industries, Bombay, the Eighth Industries conference held at Lucknow in December last year decided to recommend to the Government of India to take early steps to fix standards of weights and measures for the whole of India and to recommend to Provincial Governments to introduce these standards in their territories. The conference further decided that the weights standardized should be those recognised under Bombay Weights and Measures Act.

RECEIPTS AND EXPENDITURE

179. The expenditure incurred in connection with the enforcement of the Act during the financial year 1936-37 and during the two previous years was as under :—

	Recurring and non-recurring expenditure including Sind.
	Rs.
1934-35	97,924
1935-36	2,31,606
	Recurring and non-recurring expenditure excluding Sind.
	Rs.
1936-37	1,49,145

In addition to this expenditure local bodies also incurred recurring and non-recurring expenditure on the purchase of equipment through this department and the entertainment of staff for which exact figures are not yet available.

180. The receipts credited to Government on account of the verification and stamping work carried out by Government Inspectors during the year amounted to Rs. 5,40,000. The receipts for the year are higher than what can be expected in future. This is due to the fact that the majority of traders purchased new weights and measures instead of getting their old ones repaired, adjusted, verified and stamped under the Act. It must be noted that the work of verifying and stamping the weights, measures, etc. of the manufacturers of and dealers in weights and measures has been reserved to Government Inspectors. The collections therefore made by the Government Inspectors may be taken to be higher than normal while those of the Inspectors of local bodies have been lower than what may be expected at the time of reverification.

It will be possible to give a correct picture of annual receipts from fees accruing to Government and local bodies only after reverification of traders' weights and measures is carried out after two years from the date of enforcement of the Act.

CHAPTER XI

WORK OF THE DEPARTMENT—MISCELLANEOUS

181. The Department does quite an appreciable amount of work which cannot properly be included under any of the above heads, and yet is of sufficient importance to be noticed in the Annual Report. Work of this nature is, therefore, referred to in the present chapter.

WORK FOR OTHER DEPARTMENTS OF GOVERNMENT

182. (*a*) It was mentioned in the last year's Annual Report of this Department that the Government of India had afforded the glass manufacturing industry a certain measure of relief by way of refund of the customs duty on imported soda ash required for manufacturing purposes, and in consequence this Department was called upon to furnish information regarding the glass factories operating in the Bombay Presidency and their estimated annual consumption. During the year under review the work of checking the consumption of soda ash in the glass factories was continued for which the Industrial Chemist of this Department paid visits to the various glass factories.

(*b*) The Director of Contracts, Army Headquarters, India, Simla, was collecting information in regard to the manufacture of pith hats in the different provinces of India in order to implement the Government's policy of encouraging the development of the industries of the country to the utmost possible extent and to widen competition. Detailed particulars were asked for regarding manufacturers of pith hats, capacity of their manufacture, etc. Local enquiries were made and the information asked for was furnished to the Director of Contracts.

(*c*) The Medical Department indents its textile requirements, viz. bedsheets and pillow cases, from the Criminal Tribes Settlement each year for the use of its hospitals in the Presidency. A difference of opinion arose between the indenting and supplying departments with regard to quality and rates. The matter was referred to this Department by Government and the Director of Industries after examining the samples settled the dispute.

(*d*) A difference of opinion arose between the Jail Department and the Government Printing and Stationery Department over the question of rate at which the former should supply gunny cloth to the latter Department, in view of the rise in the price of jute which took place some time after the rates quoted by the Jail Department were accepted by the indenting department. On a reference having been made to this department in the matter, the Director of Industries examined the case and gave opinion.

(*e*) At the request of the Superintendent, Nasik Road Prison, the Senior Weaving Assistant visited the prison for giving technical advice. Similar work was done for the Yeravda Prison also.

(*f*) The Superintendent, Belgaum Prison, sought the advice of this Department for improving the textile, leather, etc., products of the Jail industry. The Weaving Demonstrators of the Department were deputed to do the needful. They demonstrated carding, spinning, dyeing and

weaving of wool by improved implements and economic methods and made useful suggestions for improvement in warping and weaving of shirting on fly shuttle looms from higher counts. The Prison authorities appreciated the assistance given and adopted the suggestions. Similarly, the dyeing demonstrator trained prisoners by giving practical demonstrations in the dyeing of cotton yarn with fast colours. Necessary advice was also given by the Tanning Expert for the Leather Department of the Prison.

(*g*) A Cottage Sizing Set was manufactured under the supervision and guidance of the Assistant Superintendent, Government Hand Weaving Institute, Poona, for the Textile Section of the Criminal Tribes Settlement, Bijapur, as the Settlement experienced difficulties in warping and sizing. The Weaving Maistry of the Settlement was also given training in handling same, so that on his return to Bijapur he could usefully apply his experience in the proper working of the textile branch.

(*h*) The Excise Department was given advice with regard to the selection of cloths from those quoted by the Jail Department and private tenderers.

(*i*) During the year under report the Backward Class Officer requested this Department for information regarding the manufacture of building bricks and unglazed tiles by the Criminal Tribes Settlement. This Department prepared and forwarded the necessary estimate giving details of cost for a roofing tile factory for a capacity of 1500 tiles per day.

(*j*) The Commissioner of Excise referred to this Department for advice on the selection of a suitable type of Boiler Plant and Auxiliaries for the Nasik Distillery as well as other engineering questions. A detailed report in this connection was forwarded to the Commissioner.

(*k*) The Department also participated in the various activities relating to the Village Improvement Scheme by deputing its technical staff to the various centres as required. Lectures on cottage industries were given by the staff with the aid of special portable weaving implements manufactured by the Department, with which the staff toured with the Village Uplift Van for propaganda and demonstration purposes in the Central Division and Southern Division according to the programmes scheduled by the Collectors. Similarly, arrangements were made for the demonstration of mica, calico and aerograph printing work in different villages.

The villagers appeared to take keen interest in these activities of the Department and were furnished with all possible information followed by practical demonstrations. The demonstration propaganda tour work is being continued.

ACTS, LEGISLATIVE PROPOSALS, ETC.

183. The undermentioned Bills and other measures were referred to this Department for opinion during the year under review :—

(*i*) A Bill further to amend the Indian Railways Act, 1890.

(*ii*) A Bill further to amend the Workmen's Compensation Act, 1923.

(*iii*) A Bill further to amend the Trade Disputes Act, 1929.

(*iv*) Proposed revision of the Indian Merchandise Marks Act, 1889.

MISCELLANEOUS ACTIVITIES OF THE DIRECTOR OF INDUSTRIES

184. During the year under review I was a member of the following bodies :—

The Bombay Legislative Council.

The Board of Trustees of the Prince of Wales Museum.

The Bombay Smoke Nuisances Commission.

The Bombay University Board of Studies in Engineering.

Board of Visitors of the University Department of Chemical Technology.

Industrial Research Council, Government of India.

The Committee to consider applications for award of prizes offered by the Industrial Research Council, Government of India.

Board of the Model Industrial Home and School, Kandivli.

I worked as the Chairman of the following institutions :—

The Board of Management of the Victoria Jubilee Technical Institute, Bombay.

The Committee of Direction for Technical Education, Bombay.

Advisory Committee in connection with Apprentice Scheme.

Advisory Committee for the Marketing Scheme for Handloom Products.

CONFERENCES, COMMITTEES, ETC.

185. **Industries Conference.**—The Eighth Industries Conference of Ministers and Directors of Industries was held in December 1936 at Lucknow. I attended the Conference as a representative of the Government of Bombay. The Hon'ble Minister was unable to attend the meeting. At the Conference the schemes sanctioned by the Government of India

for the development of the handloom industry, sericulture industry and woollen industry were further reviewed. Other subjects of importance which came up before the Conference were (1) the rule-making power in Acts affecting industry with special reference to electricity and boilers, (2) standardisation of weights and measures throughout India, (3) publication of fuller trade statistics regarding important manufactured and semi-manufactured goods produced in the country and raw materials consumed therein along with figures of inter-provincial movements of these articles, (4) removal of inter-provincial barriers to trade in the pharmaceutical and drug industry in India, and matters arising out of the proceedings of the second session of the Industrial Research Council. The Electrical Engineer to Government, Bombay, attended the Conference as a representative of Government, in connection with the discussion of the subject of the establishment of the Central Electricity Board. I put forward the views of the Local Government on the subject of Boiler Regulations at the Conference.

The Department of Industries was responsible for the subject of standardisation of weights and measures being placed on the agenda of the Conference. This Department prepared a note stating the reasons why the subject should be discussed at the Conference and why standardisation is desirable all over India on the basis of the Bombay Weights and Measures. The conclusions reached on this point were that—

(1) weights should be standardised throughout the country,

(2) by a large majority the Conference considered that the weights should be those recognised under the Bombay Weights and Measures Act of 1932, and

(3) while it was desirable that measures should be standardised, the Conference was not in a position to recommend what the standard measures should be.

In regard to the subject of removal of inter-provincial barriers to trade in the pharmaceutical and drug industry, the conclusion reached at the Conference was that a uniform set of rules to govern the movements of medicinal preparations containing alcohol between the provinces was desirable and that the question should be referred to a meeting of the Excise Commissioners who should be assisted by Directors of Industries. The question was under the consideration of the Government of Bombay during the year under report.

186. **Industrial Research Council and Industrial Research Bureau.**—The second meeting of the Industrial Research Council of the Government of India was held in Calcutta on the 2nd and 3rd July 1936. I attended the meeting as the representative of the Bombay Government.

Among the important subjects discussed by the Council were : (1) The Report of the Oils and Soap Committee ; (2) Allocation of prizes ; (3) Research programme of the Government Test House ; (4) Survey of glass factories ; (5) Improvement of glass furnaces ; (6) Survey of glass making materials ; (7) Accessories for bangle manufacture ; (8) Casein plastics ; (9) Industrial standardisation ; (10) Publications of the Bureau ; (11) Publication of proceedings of the Council ; (12) Procedure in dealing with requests for information ; (13) Compilation of information regarding researches in progress in various industrial laboratories.

A brief reference is made below to those items of the agenda in connection with which this Department did some work or this Department or Bombay Government took some decision.

In regard to (1) above, the Industrial Research Council approved the recommendations of the Oils and Soap Committee including proposals for allocation of work to individual industrial laboratories. The items of research work assigned to the industrial laboratory of the Bombay Department of Industries were cinnamon (leaf) oil and citrus oil. This Department agreed to take up the researches provided funds were forthcoming, and submitted proposals to Government in this respect. The matter was under the consideration of Government during the year.

With regard to (2), on the recommendation of the Sub-Committee appointed to consider the award of prizes for the papers submitted for the competition initiated at the first session of the Council, various awards were made by the Council. In this connection it is of interest to note that a research scholar of this Department working under the guidance of the Industrial Chemist of this Department had submitted a paper entitled " Cashewnut shell oil and its utilisation " in the aforesaid competition and was awarded a prize of Rs. 150 by the Prizes Committee.

In regard to item No. (4), Mr. Dixon, Assistant Director, Industrial Research Bureau, who conducted a survey of the Indian Glass Industry, paid a visit to Bombay and he was assisted by this Department by arranging visits to some of the glass factories in this Presidency.

As regards (6), a proposal was received by the Council that a survey of Indian glass making materials may be carried out by Dr. V. S. Dubey, Professor of Economic Geology in the Benares Hindu University ; subject to certain conditions the proposal was approved by the Council. As regards raw materials required for investigation, this Department had sent samples of sand, sand stone and felspars obtained from places in the Bombay Presidency to the Government of India Test House, Alipore, Calcutta. A further consignment of felspar from Tuva, a place in

Godhra Taluka, and sand as used by glass workers at Ghodgeri in the Belgaum District, were sent during the year to the Test House for trial and analysis.

With regard to item No. (9), as already mentioned in the last year's report, the recommendation of the Council that Directors of Industries should obtain from consuming departments of their Government, copies of specifications used by them and forward them to the Bureau with their remarks, was considered by the Government of Bombay, who came to the conclusion that no useful purpose was likely to be served so far as the Bombay Presidency was concerned by adopting the recommendation. At the second meeting of the Council, one of the conclusions reached was that Directors of Industries be asked to send to the Chief Controller of Stores (in a form prepared by him) a list of articles in common use for which specifications are not available. The Government of Bombay decided not to take any action pending receipt of a communication from the Government of India to whom their views were already communicated on the subject.

With regard to item No. (13), a list of researches on industrial problems in progress and of those that were completed or abandoned during the year ending 31st March 1937 as well as those proposed to be taken up in the industrial laboratory of the Department of Industries at the Royal Institute of Science and the Victoria Jubilee Technical Institute, Bombay, together with items of researches in progress and of those proposed to be taken up in near future in the University Department of Chemical Technology, was sent to the Industrial Research Bureau which is to draw up a combined annual list for circulation to the members of the Council. It was at first suggested that information regarding researches should be supplied by 1st June of each year. It has now been proposed that such information should be sent by 15th of May each year instead of 1st of June.

The Pioneer Magnesia Works of Kharaghoda desired the Industrial Research Bureau to undertake research work on (1) the suitability and use of magnesium chloride as a building material for jointless flooring and tile making, and (2) use of magnesium chloride for laying dust on surfaces of roads. The firm offered to bear costs for conducting the work and to supply the material for the purpose. Their request was forwarded to the Research Bureau for favourable consideration. The Bureau decided to undertake the work and to bear the expenses thereof on the condition that the tests in question would be made not on account of the firm but as a part of the Bureau's research programme and that the results obtained would, if of sufficiently general interest, ultimately be included in the reports to be published by the Bureau. Should, however, the firm wish to have tests done on their own account and for their information, then a fee of Rs. 300 was suggested. The firm decided to have the investigations carried out on their own account.

187. **A Report on Scientific and Industrial Research 1936-37.**— A Summary of the progress of scientific and industrial research during 1936-37 was sent to the Government of India for inclusion in the Annual Report of the Committee of the Privy Council for Scientific and Industrial Research, London. The material for the summary was supplied by some of the educational and scientific institutions in this Presidency.

EXHIBITIONS

188. It is the policy of this Department to participate in the Industrial and Agricultural shows held in the Presidency and elsewhere, by deputing its weaving and technical staff with a view to demonstrate improved methods in hand weaving and sizing, dyeing and printing, carding and spinning of wool, and weaving of blankets, weaving of carpets from cotton waste yarn, tanning of skins by modern methods, etc. as may be necessary at a particular show or exhibition.

The principal shows in which the Department participated during the year were as follows :—

(1) Agricultural Show, Vivalvedha, held during the Mahalaxmi Fair in April 1936.

(2) The United Provinces Industrial and Agricultural Exhibition held in Lucknow. The Senior Weaving Assistant, Mr. S. V. Telang, was deputed to participate in the Exhibition with four weaving masters under him to demonstrate galicha weaving, weaving on sari border loom with the mechanical dobby designed by this Department, weaving of sarees by using double box pit fly shuttle loom and dobby etc. Two local hand weavers selected from the Presidency were also sent to Lucknow to participate in the weaving competition organised by the Exhibition authorities. Different types of handloom products of the Presidency which included also the products of the District Industrial Associations organised by this Department under the Marketing Scheme financed by the Government of India were also sent for sale. The Department was awarded four silver medals and ten certificates of merit for its demonstrations and exhibits. One of the local weavers mentioned above obtained a prize in the weaving competition.

(3) Agricultural and Industrial Show, Kankavli.

(4) Agricultural Show organised by the Village Improvement Committee, Sholapur.

(5) Surat District Agricultural and Cattle Shows organised at Jalalpore and Government Farm, Surat.

(6) The Poona Industrial Exhibition. In addition to demonstrations in handloom weaving and dyeing and printing, processes relating to improved methods of tanning and preserving etc., of hides and skins, were demonstrated. The handloom products of the different associations

organised under the marketing scheme financed by the Government of India were also sent to the exhibition for display as well as sale. Exhibits of work turned out by some of the technical and industrial schools in the Presidency recognised by this Department were also displayed. With a view to give an idea to the public of the importance of the introduction of the Weights and Measures Act, the old weights and measures in vogue before the operation of the said Act and those allowed under the Act were displayed by the Department for comparative study.

The Department also brought to the notice of commercial bodies and others exhibitions due to be held in other parts of India and abroad.

LIBRARY

189. A library is attached to the Department which contains over 5400 books, publications, directories, etc. The library is being gradually added to so as to increase its usefulness to the Department and the public interested in industries. Over 40 Indian and foreign journals on industrial and technical subjects are being received. Several of these are obtained free but some important technical journals like the "Dyer and Calico Printer", "Chemical and Metallurgical Engineering", "Industry" and "Indian Textile Journal", are subscribed for. The expenditure incurred in connection with the purchase of books, reports, etc., and subscription to periodicals during the financial year 1936-37 and the two preceding years was as under :—

Year	Amount allotted	Amount spent
	Rs.	Rs.
1934-35	600	742
1935-36	600	642
1936-37	800	830

The library is open for reference to the general public at any time during office hours on working days. It is gratifying to note that members of the public are taking full advantage of this arrangement.

190. **Patent Office Publications.**—Consequent on the closing down of the inspection centres for the patent office publications at the Victoria Jubilee Technical Institute, Matunga, Bombay, and the Record Office, Secretariat, Bombay, and the transference of the inspection centre to the Office of the Director of Industries where there is already a library of technical books open to the public and where the patent office publications are likely to be made use of by the public as well as the technical

officers of the Department of Industries, the utility of the library has been much enhanced. About 1600 volumes comprising the Indian Patent Specifications as well as abridgments of the English Patent Specifications and Illustrated Official Journals, etc., dating from the year 1920 downwards have been transferred from the Record Office, Bombay, to the library. These are open for inspection by the public in the library room of the Department. Calls at the library from members of the public for the inspection of these publications are becoming increasingly frequent.

CHAPTER XII

STAFF AND EXPENDITURE

STAFF

191. I held the post of Director of Industries during the year under report. Mr. M. E. Haskell continued to work as Industrial Engineer except for 4 months and 3 days from 9th July 1936 to 11th November 1936 when he was away on leave out of India. During his absence a temporary post of an Assistant Industrial Engineer was created and Mr. V. V. Apte, Assistant Warden of Weights and Measures, was appointed to hold it. Dr. M. S. Patel, Dr. S. B. Setna, Mr. B. Tayabali, Mr. T. V. Lalvani, Mr. N. F. Mooraj continued as Industrial Chemist, Fisheries Officer, Principal, Ranchhodlal Chhotalal Technical Institute, Ahmedabad, Warden of Weights and Measures and Assistant Warden of Weights and Measures respectively. Messrs. N. M. Shah and D. N. Savkur continued as Marketing Officer and Textile Designer respectively except for 10 days from 28th May 1936 to 6th June 1936 when the Marketing Officer was on leave. Mr. S. Raja joined as Tanning Expert from 1st April 1936 and continued as such except for 15 days when he was on leave. Mr. S. S. Rajagopalan joined as Personal Assistant to the Director on 1st August 1936. Mr. V. V. Apte was appointed as Second Assistant Warden of Weights and Measures with effect from 1st May 1936. Mr. H. P. Dalal, Senior Inspector of Weights and Measures, officiated for Mr. V. V. Apte when the latter was appointed as Assistant Industrial Engineer. As regards other staff one Fisheries Inspector and one clerk were appointed to supervise the work of the 31 fish curing yards transferred to the control of the Department of Industries from July 1936. Towards the end of the year 3 clerks were appointed under the Apprentice Scheme. Due to increase in work in the general office, one additional clerk was appointed during the year.

TOURING

192. During the year under review, I was out of Bombay for 63 days. My tours were chiefly in connection with the meeting of the Council of Industrial Research, Calcutta, the Indo-Japanese Trade Conference at Delhi which I attended as an adviser, the eighth session of the Industries Conference, Lucknow, and inspection of the Weaving and Dyeing institutions of this Department, the various technical and industrial schools, the working of the Weights and Measures Section and various industries.

The Industrial Engineer was out of Bombay for 19 days. He could not tour extensively as he was away on leave for four months. His tours were chiefly in connection with the inspection of peripatetic weaving institutions of the Department, enquiries relating to the applications received for state-aid to industries and engineering problems at the Ranchhodlal Chhotalal Technical Institute, Ahmedabad.

The Industrial Chemist was out of the headquarters for 67 days His tours were in connection with the verification of the figures of consumption of soda ash in glass industry in connection with the question of rebate on import duty, attending the meeting of Oil, Soap and Essential Oils Committee, Simla, the inspection of the experimental field station for the extraction of lemon oil and investigation of certain minerals.

The Fisheries Officer was out of Bombay for 15 days during the year under review. His tours were for the selection of sheets of water for the introduction of inland fisheries and inspection of the fish curing yards.

The Tanning Expert was on tour for 81 days. His tours were in connection with the organisation of the tanning parties and investigation of the difficulties, etc., of the tanner and studying the condition prevalent in different districts in respect of the village tanning industry as a whole.

The Warden of Weights and Measures was out of Bombay for 17 days. His tours were in connection with the inspection of the working of the Weights and Measures Section and introduction of the Weights and Measures Act in the districts.

Mr. Mooraj, and Mr. Apte, Assistant Wardens, and Mr. Dalal, the officiating Assistant Warden, were on tour for 58, 22 and 43 days respectively. These officers' tours were in connection with the inspection of the work of the Inspectors of Weights and Measures appointed by Government as well as of the Inspectors appointed by local bodies.

The Marketing Officer (Handloom Products) and the Textile Designer (Handloom Products) were out of headquarters in connection with their

duties of organising District Industrial Associations and introducing modern designs and patterns and marketable cloths for 142 and 116 days respectively.

Visits to Works

193. The Director, the Industrial Engineer and the Industrial Chemist visited a number of concerns in connection with the investigations in hand and the rendering of technical advice, etc.

Expenditure

194. The expenditure incurred by the Department of Industries during the financial year 1936-37 and the four preceding years was as follows :—

	Rs.
1932-33	3,37,069
1933-34	3,53,368
1934-35	3,43,564
1935-36	6,31,903
1936-37	6,20,043

The figures of expenditure given above are in each case exclusive of those on such activities as the marketing of handloom products referred to in Chapter VI, and the development of the village tanning industry and inland fisheries. These activities were financed from the funds placed at the disposal of the Government of Bombay by the Government of India and the expenditure under each of these activities was as under :—

	Rs.
(1) Marketing of Handloom Products ..	32,953
(2) Tanning and Flaying of Hides ..	8,286
(3) Inland Fisheries ..	2,499
Total ..	43,738

The total expenditure on all the activities of the Department for the year 1936-37 was, therefore, Rs. 6,63,781 exclusive of that for Sind which was separated from Bombay from 1st April 1936.

The total receipts during the year were Rs. 6,16,484 ; out of this sum, Rs. 5,40,041 were realised from the fees collected by the Government Inspectors of Weights and Measures and Rs. 62,062 from fish curing yards. Receipts on account of the other activities of the Department amounted to Rs. 14,381.

Conclusion

195. The period reviewed was yet another year of very heavy work due largely to the inauguration of new schemes as well as expansion in the scope of the activities already undertaken. The Tanning and Inland Fisheries Schemes were newly inaugurated and much spade work had to be done for the Apprentice Scheme being brought into force early in the following year. The administration of the Fish Curing Yards, 31 in number, was added to the functions of the Department and the extended application of the Bombay Weights and Measures Act to all the districts of the Presidency considerably increased the volume of the work. All this imposed much additional burden on my staff who had to work at great pressure throughout the year. I wish to place on record my sincere appreciation of the able and efficient manner in which every member of the staff, both technical and clerical, performed his duties throughtout the year.

Bombay :
14th August 1937.

P. B. ADVANI,
Director of Industries.

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APPENDIX A

Recognised Technical and Industrial Schools in the Bombay Presidency during the year 1936-1937

		Grants sanctioned in 1936-37.	
		Grant-in-aid (Recurring).	Equipment grant (Non-recurring).
	(1) Schools run by Local Bodies receiving grants-in-aid from the Department of Industries.		
1.	F. S. Parekh Technical Institute, Surat	6,000	....
2.	V. J. Municipal Technical School, Poona	2,013	230
3.	Local Board Industrial School, Satara	927	....
4.	Robertson School of Industry, Pandharpur	882	....
5.	King Edward VII Technical School, Dhulia	3,697	....
6.	School of Industry, Ratnagiri	6,915	....
7.	Municipal Technical School, Sholapur	2,007	850
	(2) Schools managed by Private Bodies receiving grants-in-aid from the Department of Industries.		
8.	Nadiad Industrial Institute, Nadiad	742	....
9.	Salvation Army Boys' Industrial School, Kaira	616	....
10.	I. P. Mission Industrial School, Borsad	836	....
11.	Vocational Training School, Ankleshwar	774	....
12.	Mahajan Home Industrial School, Surat	583	....
13.	A. R. Sonawalla Industrial School, Bordi	1,050	....
14.	Mission Industrial School, Poona	1,037	20
15.	Sir D. M. Petit Industrial School, Sirur	841	....
16.	S. P. G. Mission Industrial School, Ahmednagar ..	1,690	....
17.	Salvation Army Boys' Industrial School, Ahmednagar ..	337	....
18.	St. Barnabas Industrial School, Manmad	1,243	....
19.	K. E. S. Topiwalla Industrial School, Alibag	1,413	....
20.	American Mission School for the Blind, Bombay ..	999	....
21.	Textile Technical School, Parel, Bombay	1,320	....
22.	D. N. Poor Boys' Seminary Industrial School, Bombay ..	880	....
23.	American Wesleyan Mission Industrial School, Sanjan ..	140	....
24.	S. A. Willingdon Boys' Industrial Home, Bombay ..	950	....

(3) Recognised Schools.

(a) Schools managed by Local Bodies not receiving grant-in-aid but recognised by the Department of Industries.

25. Thana School Board's Carpentry Class, Dahanu.
26. Thana School Board's Carpentry Class, Mokhada.
27. Thana School Board's Weaving Class, Khardi.

(b) Schools managed by Private Bodies not receiving grant-in-aid but recognised by the Department of Industries.

28. Jadhav College of Tailoring and Cutting, Poona.
29. Pandharpur Electric Supply Co.'s Wireman's Class, Pandharpur.
30. Bai Avabai Framji Petit Parsi Girls' Orphanage Hand-Weaving, Dyeing and Printing Classes, Bandra.
31. Radio Electric Co.'s Wireless Classes, Bombay.
32. The J. N. Petit Parsi Orphanage Carpentry Class, Bombay.
33. The Victoria Tailoring and Cutting College, Poona.
34. The Marine High School Industrial Classes, Novha.
35. The English Tailoring College, Bombay.
36. The Zarapkar Tailoring and Cutting College, Poona.
*37. E. M. F. Radio Class, Bombay.
*38. Goan Emigrants' Fund Committee's Wiremen's Class, Bombay.
*39. Success Electric Works' Wiremen's Class, Ahmednagar.
*40. The Bombay Technical Institute's Radio Class, Bombay.

(c) Government Reformatory and Settlement Schools.

41. Yera da Industrial School, Yeravda.
42. David Sassoon Industrial School, Matunga, Bombay.
43. Industrial Settlement School, Sholapur.
44. Industrial Settlement School, Bijapur.
45. Industrial Settlement School, Hubli.

(4) Government Technical Schools directly controlled by the Director of Industries, Bombay.

46. The R. C. Technical Institute, Ahmedabad.

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*Recognised for the first time in 1936-37.

(5) Industrial Institutions and Classes recognised for Examinations only.

47. B. N. Gamadia Parsi Hunnershala, Bombay.
48. Byculla Marathi Central School, Byculla, Bombay.
49. Ghorapdeo Marathi Central School, Ghorapdeo, Bombay.
50. Khetwadi Marathi Central School, Khetwadi, Bombay.
51. Foras Road, Marathi Central School, Foras Road, Bombay.
52. Lamington Road Gujarati School, Bombay.
53. Primary Handicrafts Class, Girgaon, Bombay.
54. Parel Marathi Central School, Parel, Bombay.
55. R. C. Mahim Urdu School, Mahim, Bombay
56. Lady Jamshedji Road Marathi School, Dadar, Bombay.

Note.—The C. B. Mission Industrial School, Palghar (No. 16), and the D. C. Mission Industrial School, Bombay (No. 24), in the Report of 1935-1936 under aided institutions closed down in June and April 1936 respectively on account of insufficient number of boys.

APPENDIX B

Courses of Instruction recognised by the Department of Industries through the Committee of Direction for Technical Education

1. Higher Grade Mechanical Engineering.
2. Lower Grade Mechanical Engineering.
3. Automobile Engineering.
4. Higher Grade Textile Manufacture (Spinning and Weaving).
5. Lower Grade Textile Manufacture (Spinning and Weaving).
6. Carpentry Practice, Drawing and Wood Work Technology.
7. Trained Maistry Course.
8. Mechanical Apprentice Course.
9. Automobile Apprentice Course.
10. Handloom Weaving.
11. Typography (composition and printing).
12. Carpentry and Smithy (Agricultural).
13. Tailoring and Cutting.
14. Practical Tailoring.
15. I and II Class Electric Wiremen's Courses.
16. Radio Communication.
17. Leather Work.
18. Electroplating and Battery Charging.
19. Dyeing and Printing.
20. Wood turning and Lacquering.

APPENDIX C

Statistics showing the different varieties and quantities of Fish (in lb.) brought by the Government launches

1936–37

Variety of fish.	Names of the launches.			Total.
	Lady Brabourne	Lady Sykes.	Sir Frederick Sykes.	
	lbs.	lbs.	lbs.	lbs.
Towar	1,152	....	....	1,152
Surmai	16,069	4,182	6,515	26,766
Bhing	1,495	....	....	1,495
Salmon (Rawas)	130	1,610	....	1,740
Karli	222	....	....	222
Black pomfrets (Hulva) ..	4,229	520	80	4,829
Ghol	1,545	680	....	2,225
Mullets (Bo i)	315	....	....	315
Kokeri	5,400	....	....	5,400
Gegar	1,200	....	....	1,200
Dagol	300	380	....	680
Mackerel (Bangda) ..	135,270	67,721	31,420	234,411
Sandal	60	....	....	60
Sardines (Tarli)	32,843	16,100	2,125	51,068
Pedwa	14,380	....	3,200	17,580
Ladyfish (Murdi)	535	....	....	535
Datali	935	434	....	1,369
Tunny (Kupe)	828	....	....	828
Sakla	466	80	....	546
Turbot (Bhakas)	50	....	....	50
Cat fish (Shigala)	650	....	....	650
Dog fish (Musi)	30	....	....	30
Herring (Pala)	160	240	....	400
Toli	5	....	....	5
Cock-up (Khajuri)	425	....	....	425
White pomfrets (Sarga) ..	....	41,040	9,658	50,698
Total ..	218,694	132,987	52,998	404,679

APPENDIX D

Proforma account of the Fish Curing Yards for the nine months ended on March 31, 1937

Expenditure.				*Receipts.*				
	Rs. a. p.		Rs. a. p.			Rs. a. p.		Rs. a. p.
Purchase and transport charges of salt.	56,397 4 1			Total amount remitted to treasury ..		62,051 6 0		
Add purchase and transport charges in respect of salt purchased during the year but paid for 1937-38.	2,397 7 0				Rs. a. p.			
	58,794 11 1		58,794 11 1	*Less* extra work fees ..	21 11 0			
Petty construction and repairs ..	....		983 7 4	*Less* amount credited to treasury during the year in respect of the cost of denatured salt which will be issued to agriculturists during 1937-38.	337 8 0			
Other non-contract contingencies ..	1,671 15 9							
Add cost of stationery and forms ..	392 0 0		2,063 15 9					
Pay of yard and supervising establishment.	....		17,520 8 0		359 3 0	359 3 0		
Travelling allowance of yard and supervising establishment.	....		1,061 6 0			61,692 3 0		

House rent to yard establishment ..	....	135 0 0	*Add* cash in hand at the various yards.	95 0 0	
Escort charges of salt	....	819 6 0			
		81,378 6 2	Total net receipts at the yards ..	61,787 3 0	
Add pension contribution at $8\frac{1}{3}$ per cent. of the maximum pay of establishment.	....	1,717 0 8			
Total expenditure ..	....	83,095 6 10			
Less value of stock of salt at the yards on 31st March 1937 after close of transactions.	....	29,253 0 2			
Net expenditure at the yards ..	....	53,842 6 8			
Add net profit during the year ..	....	7,944 12 4			
		61,787 3 0			61,787 3 0

APPENDIX

Statement showing the operations of the Fish Curing Yards in the 9 months ended on

Serial No.	Name of the yard.	Year.	Quantity of fish brought to be cured.	Quantity of salt issued.	Quantity of fish removed.
1	2	3	4	5	6
	Ratnagiri District		Md. s. t.	Md. s. t.	Md. s. t.
1	Boria	1936-37 ..	3,924 0 0	1,308 0 0	2,943 0 0
2	Jaigad	1936-37 ..	9,748 20 0	3,287 20 0	7,311 15 0
3	Varoda	1936-37 ..	2,061 0 0	687 0 0	1,545 30 0
4*	Kalbadevi	1936-37 ..	1,899 0 0	633 0 0 (*a*) 77 24 0	1,424 10 0
5*	Ratnagiri	1936-37 ..	27,625 20 0	9,267 20 0	20,719 5 0
6	Purnagad	1936-37 ..	3,552 0 0	1,184 0 0	2,464 0 0
7	Jaitapur	1936-37 ..	7,431 0 0	2,477 0 0	5,573 10 0
8	Vizaidurg	1936-37 ..	6,897 0 0	2,299 0 0	5,172 30 0
9	Mumbri	1936-37 ..	1,840 0 0	368 0 0	1,380 0 0
10	Mithbao	1936-37 ..	2,179 0 0	405 20 0	1,634 10 0
11	Achra	1936-37 ..	971 20 0	211 20 0	736 5 0
12	Talasil	1936-37 ..	1,306 20 0	325 20 0	1,061 10 0
13	Malwan	1936-37 ..	22,644 20 0	5,065 20 0	16,983 15 0
14	Deobag	1936-37 ..	13,118 0 0	2,946 0 0	9,838 20 0
15	Mobar	1936-37 ..	5,501 0 0	1,353 0 0	4,122 0 0
16	Kochra	1936-37 ..	3,638 0 0	990 0 0	2,728 20 0
17*	Vengurla	1936-37 ..	5,652 20 0	1,444 0 0 (*a*) 189 6 0	4,239 15 0
18	Shiroda	1936-37 ..	5,556 0 0	1,383 0 0 (*a*) 338 0 0	4,167 0 0
	Total, Ratnagiri District ..	1936-37 ..	125,545 0 0	35,635 0 0 (*a*) 654 30 0	94,043 35 0

E

Ratnagiri and Kanara Districts of the Bombay Presidency for March 31st, 1937

Proportion of fish to each maund of salt issued.	Receipts.					
	Expenditure including cost of construction, repairs, etc. at the yards.	Amount realised by sale of salt.	Miscellaneous receipts.	Stock of salt at the close of the year.	Value of salt in stock at the close of the year.	Total of cols. 9, 10 & 12.
7	8	9	10	11	12	13
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Md. s. t.	Rs. a. p.	Rs. a. p.
3·2	2,037 5 2	1,308 0 0	5 4 0	1,731 35 0	802 3 2	2,115 7 2
2·87	3,690 12 8	3,287 8 0	....	2,579 36 0	1,162 4 10	4,449 12 10
3	1,281 11 5	687 0 0	....	702 0 0	334 11 1	1,021 11 1
3	1,100 10 9	633 0 0 (a) 40 0 0	0 8 0	779 0 40	361 8 10	995 0 10 (a) 40 0 0
2·91	7,752 14 4	9,267 8 0	2 4 0	5,413 30 40	2,523 9 8	11,793 5 8
3	1,764 13 8	1,184 0 0 (a) 5 0 0	1 12 0	1,261 25 0	574 3 4	1,759 15 4 (a) 5 0 0
3	3,595 10 0	2,477 0 0 (a) 1 8 0	....	3,416 33 0	1,580 15 7	4,057 15 7 (a) 1 8 0
3	2,501 5 10	2,299 0 0	2 0 0	1,686 38 0	788 9 6	3,089 9 6
5	1,117 4 2	368 0 0 (a) 10 0 0	6 0 0	718 12 0	365 9 6	739 9 6 (a) 10 0 0
5·37	1,231 5 0	405 8 0	0 5 0	1,050 2 0	522 9 0	928 6 0
4·59	1,089 0 6	211 8 0	0 8 0	907 30 0	478 10 8	690 10 8
4·01	1,566 9 2	325 8 0	0 12 0	1,416 21 0	889 7 0	1,215 11 0
4·47	5,993 10 8	5,085 8 0	3 4 0	4,759 1 0	2,459 2 4	7,527 14 4
4·45	4,242 5 5	2,946 0 0	4 9 0	4,224 32 0	1,996 8 10	4,947 1 10
4·06	2,764 11 0	1,353 0 0	7 6 0	2,427 18 0	1,177 3 8	2,537 9 8
3·67	1,837 9 9	990 0 0	....	847 39 0	403 3 8	1,393 3 8
3·91	4,820 4 4	4,444 0 0 (a) 318 0 0	....	6,784 4 0	3,241 11 11	4,685 11 11 (a) 318 0 0
4·01	2,731 3 4	1,383 0 0 (a) 294 8 0	....	2,302 8 0	1,162 13 9	2,545 13 9 (a) 294 8 0
....	51,119 3 2	35,635 0 0 (a) 669 0 0	34 8 0	43,010 5 0	20,825 2 4	56,494 10 4

Statement showing the operations of the Fish Curing Yards in the 9 months ended on

Serial No.	Name of the yard.	Year.	Quantity of fish brought to be cured.	Quantity of salt issued.	Quantity of fish removed.
1	2	3	4	5	6
	Kanara District.		Md. s. t.	Md. s. t.	Md., s. t.
19*	Majali	1936-37	16,434 20 0	5,099 0 0	12,325 35 0
20*	Bingi	1936-37	7,149 0 0	1,919 0 0	5,222 0 0
21*	Chendia	1936-37	15,047 0 0	4,717 20 0 (a)4 34 0	10,362 0 0
22	Kudar	1936-37	1,144 20 0	371 0 0	862 20 0
23	Harwada	1936-37	10,307 0 0	3,190 20 0	7,039 30 0
24*	Keni	1936-37	5,694 0 0	1,866 20 0 (a)99 36 32	4,281 0 0
25	Gangawali	1936-37	2,117 0 0	615 0 0 (a)27 6 32	1,693 24 0
26*	Kumta	1936-37	4,510 0 0	934 0 0	3,551 0 0
27*	Mallukurwa	1936-37	12,111 0 0	2,243 0 0 (a)7 30 0	10,000 20 0
28	Manki	1936-37	9,034 20 0	2,136 20 0	6,775 35 0
29*	Murdeshwar	1936-37	3,858 0 0	774 20 0 (a)14 22 0	3,215 0 0
30*	Shirali	1936-37	4,357 20 0	759 20 0	3,574 20 0
31*	Bhatkal	1936-37	4,379 20 0	975 20 0 (a)32 0 32	3,394 0 0
	Total, Kanara District ..		96,137 20 0	25,601 20 0 (a)186 9 16	72,297 24 0
	Grand Total ..		2,21,682 20 0	61,236 20 0 (a)840 39 16	1,66,341 19 0

(a) Issued for agricultural purposes.

654 maunds 30 seers 32 tolas of salt for agricultural purposes will be issued during the year 1937-38.

Ratnagiri and Kanara Districts of the Bombay Presidency for March 31st, 1937—contd.

Proportion of fish to each Maund of salt.	Expenditure including cost of construction repairs, etc. at the yards.	Receipts. Amount realised by sale of salt.	Miscellaneous receipts.	Stock of salt at close of the year.	Value of salt at the close of the year.	Total of cols. 9. 10 & 12.
7	8	9	10	11	12	13
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Md. s. t.	Rs. a. p.	Rs. a. p.
5·30	3,637 0 4	5,099 0 0	....	1,443 21 0	590 15 1	5,689 15 1
3·72	2,120 15 5	1,919 0 0	....	1,117 22 0	446 5 0	2,365 5 0
3·18	3,450 14 4	4,717 8 0 (a)2 8 0	5 0 0	1,775 14 0	700 2 5	5,422 10 5 (a)2 8 0
3·08	1,435 14 2	371 0 0	....	1,594 32 0	820 11 4	1,191 11 4
3·23	2,855 1 2	3,190 8 0	....	1,776 32 0	736 4 7	3,926 12 7
3·05	2,051 14 7	1,866 8 0 (a)51 8 0	....	1,209 33 8	471 1 3	2,337 9 3 (a)51 8 0
3·44	1,172 2 11	615 0 0 (a)14 0 0	....	862 28 48	447 0 2	1,062 0 2 (a)14 0 0
4·82	1,235 3 4	934 0 0 (a)5 0 0	....	857 32 0	367 3 11	1,301 3 11 (a)5 0 0
5·39	2,809 7 6	2,243 0 0 (a)4 0 0	....	2,566 13 0	1,031 5 11	3,724 5 11 (a)4 0 0
4·24	1,919 1 5	2,136 8 0	10 0 0	1,145 35 0	460 8 1	2.607 0 1
5·62	1,638 14 11	774 8 0 (a)7 8 0	5 0 0	1,405 25 0	671 4 9	1,450 12 9 (a)7 8 0
5·70	2,002 10 8	759 8 0	....	1,934 26 0	1,000 4 2	1,759 12 2 (a)1 0 0
4·48	1,695 14 10	975 8 0 (a)16 8 0	....	1,325 19 48	684 11 2	1.660 3 2 (a)16 8 0
..	28,025 3 7	25,601 8 0 (a)102 0 0	20 0 0	19,016 13 24	8,427 13 10	34,049 5 10
....	79,144 6 9	61,236 8 0 (a)771 0 0 62,007 8 0	54 8 0	62,026 18 24	29.253 0 2	90,544 0 2 (a)771 0 0 91,315 0 2

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